

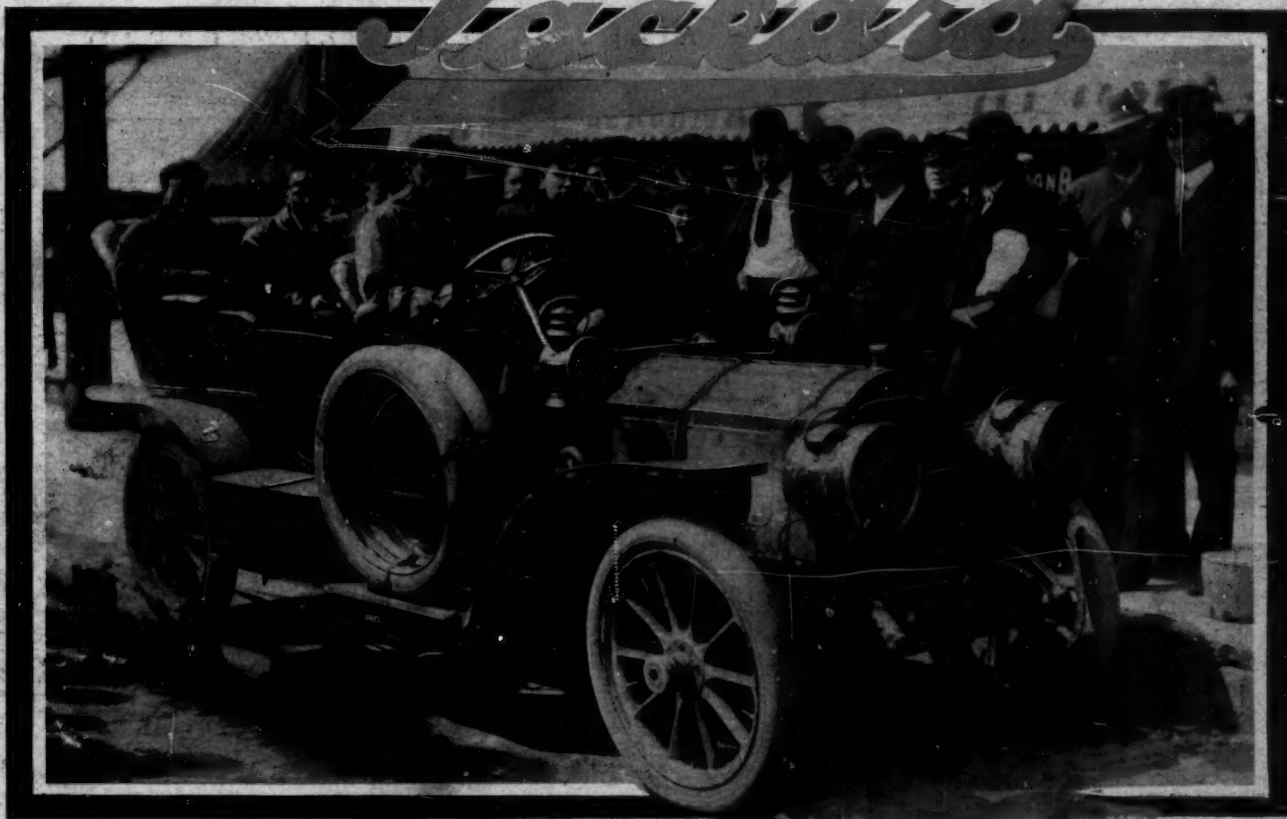
MOTOR AGE

Volume X Number 1

Chicago, July 5, 1906

Ten Cents a Copy

Packard



606 miles of Michigan's sandy roads in less than one day with absolutely no repair, adjustment or replacement except one tire—is the world's record established by the 1907 Packard on May 31st.

THE RECORD

LEFT	ARRIVED	ELAPSED TIME	RUNNING TIME
Detroit 12 midnight,	Chicago 11:00 a. m.,	11 hrs., 10 hrs., 13 min., 40 sec.	
Chicago 12 noon,	Detroit 10:50 p. m.,	10 50 10 hrs., 22 min.	
Total		21 50	20 hrs., 35 min., 40 sec.

Note the wonderfully consistent running. The elapsed and running times in each direction vary only ten minutes and nine minutes respectively on the two runs of 303 miles each. The average speed maintained throughout the entire 606 miles is approximately 30 miles per hour.

Packard Motor Car Company

Member Association Licensed
Automobile Manufacturers

Dept. 2, Detroit, Mich.

New York Branch
1540 Broadway

It's Worth While To Bear in Mind

that *good* tires have more to do with the serviceableness of the balance of the car than some motorists imagine.

Bothersome tires can easily render your auto purchase a source of continuous annoyance.

You not only minimize the liability of damage to your car, but you are enabled to enjoy a sense of *absolute confidence in it* by the use of

MORGAN & WRIGHT TIRES

CLINCHER-DUNLOP-BAILEY "WON'T SLIP" TREAD

MORGAN & WRIGHT, CHICAGO

NEW YORK
SYRACUSE

BOSTON
PHILADELPHIA

CLEVELAND
DAYTON

DETROIT
MINNEAPOLIS

ATLANTA
ST. LOUIS

KANSAS CITY
DENVER

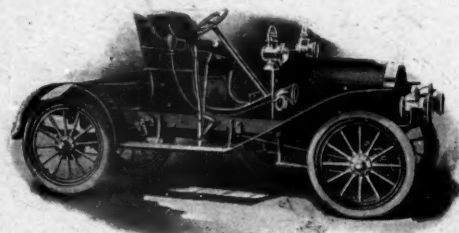
LOS ANGELES
SAN FRANCISCO

PORTLAND



Mora Roadster

MECHANICALLY RIGHT



WITH TORPEDO BACK

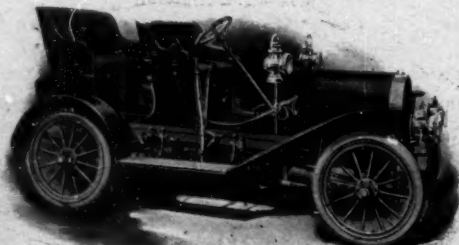
QUALIFICATIONS

Engine and Transmission shafts assembled as a single unit. Takes ordinary grades on high speed and extraordinary grades on intermediate. Convertible to four passenger Surrey at will in ten minutes time.

Compare it with cars & see how for double the money.

SPECIFICATIONS

Four cylinder vertical Engine, 24 horse power, water cooled. 98-inch wheel base; 32-inch wheels. Weight 1700 pounds. Entirely mud proof. Price \$1850. Surrey seat \$125 additional.



WITH SURREY SEAT

1907 CATALOGUE PROVES IT

SENT FREE

MORA MOTOR CAR CO.

320 Livingston Bldg.

ROCHESTER, N. Y., U. S. A.



MOTOR AGE

VOL. X NO. 1

CHICAGO, JULY 5, 1906

\$2.00 Per Year

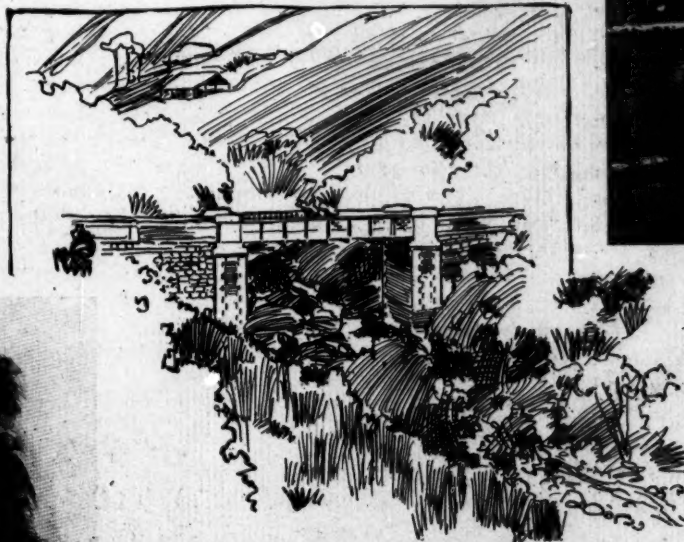
PORTO RICO IN PARADISE CLASS

PORTO RICO as a motoring possibility is worthy of consideration, according to Tom Temple Roe, a Frayer-Miller man who has been on the island for the last 6 months handling a car for the auditor of the port. Picturesque scenery and fine roads are embodied in the report Roe makes and the joys of motoring there are fully told by the historian of the party Roe recently conducted over the military road on the island. As told by this historian, the story of the trip runs as follows:

"There were five in the party as we left the plaza in San Juan, bound for Ponce by way of the military road. The crowd which had gathered to inspect the big black Frayer-Miller opened at a grunt from the horn. We moved slowly at first to avoid the many black feet scurrying to get out of our way. Then we whizzed around the corner, and turned down Fortaleza street. The clatter from our unmuffled engine echoed and re-echoed in the narrow, cobble-stoned street. Men, women and children gath-

ered on the balconies and in doorways, even swarming to the edge of the narrow sidewalk. We were not long in reaching the city limits, passing Colon plaza, and on the left, a short distance from the road, the land side of San Cristobal, with its empty trenches, decaying and vine-covered walls. At Porta Tierra we passed what at one time was the gate to San Juan. There is only one road into the capital, and in Spanish times the gate was guarded, and the country people could not enter the city without permits.

"There was no barrier in our way and with a slight increase in speed we were



out in the clear road leading past the city jail and over San Antonio bridge, the only land entrance to St. Juan. As we passed Miramar, the home of the Union club, the sun was sending his signal rays above the horizon. A little further on we passed through San Turce, where many of the Spanish merchants live in neat one-story cottages, surrounded by trees and varicolored shrubbery. The sun had not yet dried the dew from the leaves and flowers and one little whiff of wind bore us the perfume of dame de noche. Reaching the top of a slight grade, we passed groups of tiendas or stores, vegetable carts, and servants doing their day's marketing before sun-up. Near Martin Peña we over-



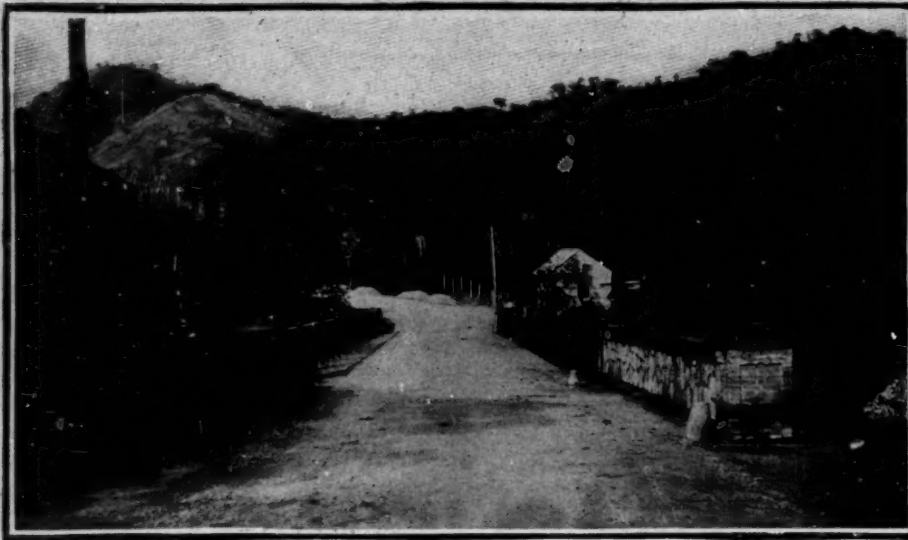
ONE OF FOUR TURNS IN A HALF MILE

took a party of farmers who had delivered their wares at the market in San Juan, and were returning to their mountain homes. We noted the tiny, rawboned ponies, topheavy with native baskets, now empty but nevertheless cumbersome. On top of these sat the riders, strong specimens of outdoor manhood, their feet dangling with every pace of the patient little animals. They heard the whirr of our machine and gave us all the road.

"Rio Piedras, the first town through which we passed, has a fine garden with a stone wall, in addition to its plaza and cathedral. Here one can find almost every specimen of tropical vegetation growing to its best advantage. The insular police now occupy the building, which was formerly the country home of the Spanish governor. We passed down the principal street of Rio Piedras through the town, and were again on the country road, lined on each side by tall cocoa palms. It was not yet 7 o'clock. The sun was shedding



THE MONARCH OF THE ISLAND



STEEL BRIDGES SPAN THE ISLAND STREAMS

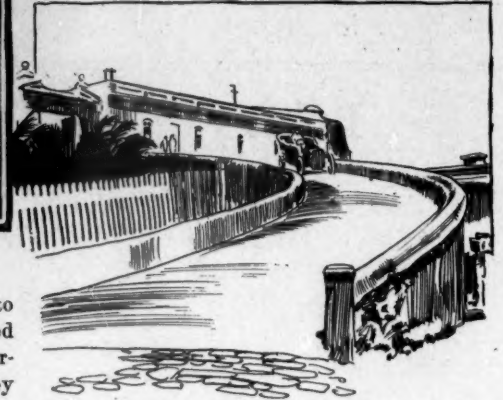
his full light above the hills, and we saw a glorious country all around us. Immediately in front stretched the smooth white macadam road. Beyond, the foothills of the central range of mountains, while beyond these and rising clear to the clouds we could see one blue mountain after another, clothed with vegetation to their very tops. The country is thickly populated. The poorer farmers who own a few acres confine themselves to raising fruits, vegetables and poultry. Yams and plantains, a variety of banana, grow easily and require very little cultivation. Pigs, goats, chickens and turkeys get their living from the thick undergrowth. The poorer class of farmers are mostly home-loving, thrifty though illiterate people. They build their houses on long poles from 2 to 12 feet from the ground. The sides and roofs are thatched with banana and palm leaves. The more prosperous farmers raise coffee and tobacco for market and exporting.

"We glanced hurriedly around us, in order to grasp each view before it was gone, its place to be taken by a new and stranger panorama. Cocoa palms and banana trees were growing everywhere. Coach drivers with galloping horses strove to make better time when they heard the automobile coming. It was no use, for their little, tough-skinned horses were already lathered with perspiration. Our driver closed the throttle, thus decreasing our speed. The turns were short and complex, and we could see only a short length of road ahead. On coming around an unusually abrupt bend in the road we saw a long line of ox-carts a short distance ahead. The road was narrow and the leading team already on the bridge which we had to cross. There was confusion among the drivers, who climbed from their perches under the hoods of their wagons. They poked the oxen with long poles, at the same time yelling and muttering Spanish oaths. The oxen were yoked by the horns to the poles of the two-wheeled carts without anything to prevent their turning

out on each side. It was necessary to stop the engine. Our operator climbed from his seat in the automobile, went forward to the scene of the difficulty and by a few cool, well-directed pokes at the frantic animals, who had been heaving and pitching forward to no effect—and backed them off the bridge, thus allowing us to pass ahead of the fifteen or more clumsy vehicles. It is an acknowledged fact among automobile men on the island that it is not only necessary to be a good automobile driver, but also an ox driver and a diplomat in a small way.

"Before entering the village of Caguas we forded a shallow stream flowing in a wide river bed. Caguas valley is given over largely to coffee culture, cane growing and tobacco raising. The plaza in Caguas is a square in the heart of the town, made up in flower beds, low shrubbery and winding paths. The cool shade and benches, hard though they are, tempted us to stop here for a short rest and respite from the hot sun. Natives of every degree of coloring and clothing crowded

around us. Five great yellow oranges were offered for a cent. Here a boy with a flat wooden tray of cocoa dulce lowered his stock in trade from his head and urged us to sample the hard chunks of Porto Rican candy. The display all around us consisted of laces, shell boxes, drawn work, a green parrot, oranges, knick-knacks, hammocks and beads. We made a selection and after some dickering as to prices we were once more soon left to ourselves.



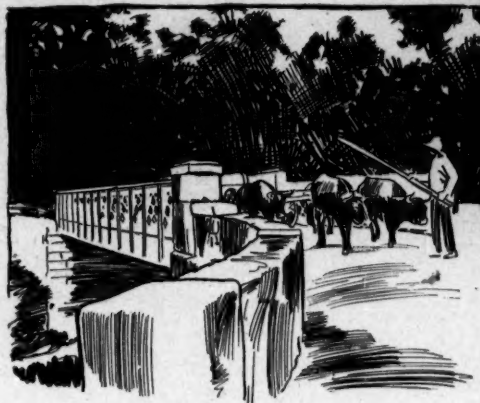
ENTRANCE TO FORT SAN CHRISTOBAL

"The first 5 miles after Caguas led down an avenue of spreading, feathery-leaved trees bearing pods from 10 to 15 inches long. The blossoms of the arbol flamenco are a bright scarlet and orange, quite like a geranium in shape and coloring. The long seed pods replace the bright flowers which give the tree its name. Leaving the prettily shaded stretch of road, we recommenced our climb. The hills were not steep, but long and winding. The road in some places is built on a ledge of rock. A precipice is on one side, and a rocky bluff on the other. Here we entered a maze of windings, following the road round and round, and steadily up. Across a pretty valley we saw the white stretch of road which we had left 20 minutes before, and which we had thought to be miles behind us. And so it was,



BRIDGE ON MILITARY ROAD BETWEEN CATEY AND ABONITO

we were to retrace as we had come. But here it was only a stone's throw across the valley. Picturesque, arched bridges marked the waterways of mountain streams. Again we entered a broad valley. The low-lying barracks told us we were near Cayey, for here were quartered Porto Rican troops. It was early for lunch, so we took only a cup of black Porto Rican coffee, served to us in the automobile, and hurried on our way. Our



NATIVE TRANSPORTATION

progress on the road was marked by small stone piles. Rounding a bend of the road which brought us from behind an immense jutting of rock, Cayey valley came into view. With an exclamation of delight, we saw stretching far below us in the rich valley acre after acre of white canvas, covering the tender tobacco plants, and here and there were drying sheds. The entire Cayey valley is noted for the excellent tobacco crop grown. In some places the white fields follow the mountain slope toward the top. Every turn in the road leaves a new impression, until finally the valley is shut from view.

"The town of Aibonita is built near the highest point of the mountains, and is about 2,300 feet above sea level. Passing the infantry barracks built by General Wheeler, we entered the town on the low



ROADS ARE BUT SILVER RIBBONS THROUGH THE VALES

speed. The cathedral in Aibonita is one of the prettiest on the island, being built of white limestone, and with two steeples and a rounded dome. For 3 miles we continued our climb toward the summit. The road at Aibonita pass is built on a shelf of rock which overhangs the road a few seconds further on. At the time of the American invasion, this point on the road was mined, connecting batteries with the Spanish fort on the summit. The location is peculiarly adapted to small arms and strategic methods in time of war.

"The bushy tops and white trunks of the royal palms emphasized the green of the mountain vegetation. We wondered how this delightful road was kept in such perfect order. It was built by the Spanish government in the year 1855. Every 10 kilometers is white stone buildings with signs, 'Camineros,' meaning road workers. Men who make it their business to keep the road up to its original standard of perfection make these houses their headquarters.

"Coamo was the next village on our

route. We stopped only long enough for a cocoa-de-agua to quench our thirst. Near the village are mineral hot baths, a fine tourists' hotel, the mineral settlement being known as Coamo Springs. From Coamo to Juana Diaz the slope undulates. On either side of the road natives at work in the cane fields with long machetes made a strange picture. At 8 miles from Ponce we saw the blue waters of the Caribbean sea with, here and there, vessels anchored off the port. We forded several streams near Juana Diaz. Shortly after 3 o'clock we entered the city of Ponce. We were desperately hungry, having eaten nothing but our basket lunches and the knick-knacks purchased on the road. So we made our way to Hotel Francais. Here we were welcomed by the quaint little French hostess. Our welcome was a substantial one, for by the time we had removed the stains of travel we were summoned to an excellent course dinner, which tasted all the better because it was midway between lunch time and the conventional dining hour.

"Our driver reported that we had come a distance of 83 miles, with an average grade of 7 per cent. Our engine had consumed 8 gallons of gasoline, at a running cost of $\frac{1}{2}$ cent per mile for each passenger. The trip has been so thoroughly enjoyed by each member of the party that we hope to make a trip over the road between Ponce and Arecibo, a city on the northwestern coast, of local fame and passing attraction.

"The West India Oil Co. supplies gasoline and lubricating oil on both sides of the island. There is an expert automobile repair man with headquarters in San Juan. The Porto Rican roads are unexcelled, and there are no arbitrary speed laws. To motorists contemplating a West Indian touring little advice is needed. Repairs must be taken in the car, as repair shops and garages are practically unknown. When accidents occur and spare parts are essential a long wait robs the tour of much of its pleasure."



EASY CURVES FRINGED WITH VERDANT WALLS

SIXTY NAMED FOR THE GLIDDEN

Eleventh Hour Sees a Grand Rush To File Nominations for the A. A. A.'s Big Tour—Chicagoans Complete Plans for Start of Pleasure End of the Jaunt

Chicago, July 4—The third annual tour of the American Automobile Association starts tomorrow morning from this city, and the indications are that there will be at least eight cars in the party. This will be the pleasure end of the tour, the contest for the Glidden trophy starting in at Buffalo on the 12th. The preliminary run from here, is in charge of L. E. Myers, who is also chairman of the sub-committee which drafted the rules for the Glidden. Besides Mr. Myers there will be in the party the following: No. 1, N. H. Van Sicklen, Apperson, five in party; No. 5, J. H. McDuffee, Stoddard-Dayton, four in party; No. 6, Charles Y. Knight, Silent Knight, four in party; No. 10, C. A. Coey, Thomas Flyer, four in party; No. 19, Webb Jay, White steamer, four in party; No. 35, C. Harry Fosgate, three in party.

With the exception of Mr. Knight all these are entered from the Chicago Automobile Club. Mr. Fosgate is a resident of Quincy, Ill., and is not contesting for the trophy. F. J. Pardee, in a Packard, is also entered from the Chicago club, but it is his intention to ship his car to Buffalo by rail. Elwood Haynes, a Chicago club entrant, will start from Buffalo. As laid out the Chicago party will make Goshen, Ind., the first day; Toledo, O., the second; Cleveland, O., the third; Erie, Pa., the fourth, and Buffalo the fifth.

New York, July 3—The contest for the Glidden trophy, which is this year a part of the third annual tour of the American Automobile Association, will be over a total mileage of 1,134.8 miles. This is the actual distance to be traversed by the contestants for the trophy from Buffalo to Bretton Woods, according to new odometer survey. The detail of the itinerary, with the exact mileage of the daily runs, is as follows:

July 12—Buffalo to Auburn.....	135
July 13—Auburn to Utica.....	76
July 14—Utica to Saratoga.....	95
July 15—Saratoga.....	
July 16—Saratoga to Elizabethtown..	94.1
July 17—Elizabethtown to Lake Champlain Hotel.....	37.7
July 18—Lake Champlain Hotel to Montreal.....	72
July 19—Montreal.....	
July 20—Montreal to Three Rivers....	96.1
July 21—Three Rivers to Quebec.....	97.9
July 22—Quebec.....	
July 23—Quebec.....	
July 24—Quebec to Jackman, Me.....	109
July 25—Jackman to Waterville, Me.....	93
July 26—Waterville to Rangeley Lake..	105
July 27—Rangeley.....	
July 28—Rangeley to Bretton Woods..	21

Total mileage1,134.8

Beginning with the start from Buffalo the checking system, on which rests the value of the contest, will be inaugurated. Checkers will be sent forward by patrol car early in the day and deposited at the points named in the daily schedules. Each of these checking stations will be designated by an appropriate flag. As each

car passes each checker the latter will enter on a record card the hour and minute when the car passes. The actual time of passing will have to coincide to the minute with the schedule time in order that the car may escape a penalty. For each minute the car is ahead of its schedule time it will be penalized one point.

The double penalization for being ahead of the schedule is to prevent racing, the daily schedule being arranged on the basis of the maximum legal speed limits, with allowances for various delays, such as filling of tanks, traffic delays, etc. Such checking will be done each day at points averaging 25 miles apart and at the conclusion of each day's run. In this way the entire tour is divided into forty-four checking units or periods, and the driver who comes nearest to maintaining the pre-arranged schedule each day will receive the lowest penalization and will therefore become the winner of the trophy.

Each driver will receive a card at the time of checking out in the morning, which will state the time allowed to make each checking station and the exact hour and minute when he must arrive at the night stop, so that he can estimate his running during the entire day and at all times. Garage officials and checkers will compare watches at the beginning of each day, and there will be no appeal from the time as registered by the various official watches.

A second patrol car will follow the last entrant to start and will pick up the various checkers and carry them to the night stop. This car will also render aid to any car in distress by carrying messages to the nearest towns and apprising the tour officials of the difficulties should such occur.

The following committeemen have tendered the use of their cars as committee and press cars: Paul H. Deming, chairman, White steamer; Sidney S. Gorham, secretary, Winton.

Sixty entries had been received for the tour when the lists formally closed at noon today. The first twenty-four have already been published in Motor Age. The others are as follows:

No. 25.—Charles F. Barrett, care the Electric Vehicle Co., Hartford, Conn. Buffalo to Bretton Woods. Columbia car of 24-28 horsepower. Will contest for Glidden trophy. Five in party. Automobile Club of Hartford.

No. 26.—Frederick J. Pardee, 1218 Michigan avenue, Chicago, Ill. Buffalo to Bretton Woods. Will contest for Glidden trophy. Packard car of 24 horsepower. Five in party. Chicago Automobile Club.

No. 27.—Percy P. Pierce, care George N. Pierce Co., 752 Main street, Buffalo, N. Y. Buffalo to Bretton Woods. Will contest for Glidden trophy. Pierce Great Arrow car of 40-45 horsepower. Four in party. Automobile Club of Buffalo.

No. 28.—Archie E. Hughes, care Foss-Hughes Motor Car Co., Philadelphia, Pa. Buffalo to Bretton Woods. Will contest for Glidden trophy. Pierce Great Arrow car of 40-45 horsepower. Four in party. Rhode Island Automobile Club.

No. 29.—H. E. Shiland, care Buick Motor Car Co., Jackson, Mich. Buffalo to Bretton Woods. Will contest for Glidden trophy. Buick car of 30 horsepower. Four in party. American Automobile Association.

No. 30.—W. C. Durant, care Buick Motor Car Co., Jackson, Mich. Buffalo to Bretton Woods. Will contest for Glidden trophy. Buick car, 22 horsepower. Four in party. American Automobile Association.

No. 31.—Augustus Post, 31 Nassau street, New York. Buffalo to Bretton Woods. White car of 18 horsepower. Automobile Club of America.

No. 32.—Benjamin W. Richert, care Packard Motor Car Co., New York. Buffalo to Bretton Woods. Will not contest for Glidden trophy. Packard car of 24 horsepower. Three in party. New York Motor Club.

No. 34.—John W. Breyfogle, care Gearless Transmission Co., Rochester, N. Y. Buffalo to Bretton Woods. Will contest for Glidden trophy. Gearless car of 50 horsepower. Four in party. Rochester Automobile Club.

No. 35.—C. Henry Fosgate, Quincy, Ill. Chicago to Buffalo. Will not contest for Glidden trophy. Three in party. Pierce Great Arrow of 40-45 horsepower. Chicago Automobile Club.

No. 36.—W. W. Burke, care Electric Vehicle Co., 134 West Thirty-ninth street, New York city. Buffalo to Bretton Woods. Will contest for Glidden trophy. Columbia car, 40-45 horsepower. Four in party. New York Motor Club.

No. 37.—Charles G. Wridgeway, care Peerless Motor Car Co., New York city. Buffalo to Bretton Woods. Will contest for Glidden trophy. Peerless car of 30 horsepower. Four in party. Automobile Club of America.

No. 38.—Arthur L. Rich, care Lozier Motor Co., New York city. Buffalo to Bretton Woods. Will contest for Glidden trophy. Lozier car of 40 horsepower. Four in party. New York Motor Club.

No. 39.—L. F. Braine, New York Motor Club, 18-horsepower White, three passengers. Entered for tour only.

No. 40.—J. G. Cassatt, Philadelphia A. A. A., 18-horsepower White, four passengers. Cup contestant.

No. 41.—I. C. Kirkham, 25 Broad street, New York city. Buffalo to Bretton Woods. Will contest for Glidden trophy. Maxwell car of 16 horsepower. Four in party. American Automobile Association.

No. 42.—S. S. Gorham, Chicago Automobile Club, 30-horsepower Winton, three passengers. Committee car.

No. 43.—Frank H. Pelsch, Chicago A. C., 30-horsepower Peerless, two passengers. A. Hollerman, driver. Entered for tour only.

No. 44.—E. W. Beach, Hartford A. C., 28-horsepower Packard. Committee car.

No. 45.—Thomas F. Moore, New York Motor Club, 30-horsepower English Daimler, four passengers. Cup contestant.

No. 46.—H. A. Grant, A. A. A., 16-horsepower Maxwell, two passengers. Pilot car.

No. 47.—John L. Snow, Boston, Bay State A. C., 30-horsepower Peerless, four passengers. Cup contestant.

No. 48.—James Laughlin, III, Berkshire A. C., 30-35-horsepower Cleveland, four passengers. Cup contestant.

No. 49.—Charles L. Auger, Paterson, N. J., A. C. A., 20-horsepower Stevens-Duryea. Saratoga to Bretton Woods. Entered for tour only.

No. 50.—Maxwell S. Hart, New Britain, Conn., N. B. A. C., 24-horsepower Corbin, three or four passengers. Cup contestant.

No. 51.—Ernest Keeler, New York, A. A. A., 28-30-horsepower Oldsmobile, four passengers. Cup contestant.

No. 52.—R. R. Owen, Chicago A. C., 28-30-horsepower Oldsmobile, four passengers. Cup contestant.

No. 53.—Dexter Fairland, Chicago and Cleveland A. C., 30-35-horsepower Cleveland, four passengers. Cup contestant.

No. 54.—W. L. Davis, Hartford, Conn., A. A. A., 20-25-horsepower Pope-Hartford, four passengers. Cup contestant.

No. 55—W. A. Danzer, Hagerstown, Md., H. A. C., 24-28-horsepower Crawford, four passengers. Cup contestant.

No. 56—Charles Schmidt, Cleveland, O., Peerless. Details to follow by mail.

No. 57—Harrison Wagon Co., Grand Rapids, Mich. Details to follow.

No. 58—S. B. Stevens, Rome, N. Y., A. C. A., 40-60-horsepower Darracq, four passengers. Cup contestant.

No. 59—Harry T. Clinton, Dobbs Ferry, New York Motor Club, 28-30-horsepower Oldsmobile, four passengers. Cup contestant.

No. 60—Philip Corbin, Jr., New Britain, Conn., N. B. A. C., 24-horsepower Corbin, four or five passengers. John Dower, driver. Cup contestant.

ANOTHER MOTOR AGE SCOOP

New York, June 30—Motor Age scooped all the trade papers to-day in being first on the ground on Thursday with the story of the grand prix. No other of its rivals was in the hands of tradesmen, clubmen or subscribers here before Friday. At 9:45 o'clock on the morning following the race the Motor Ages arrived here. They were met at the station by automobiles. Within an hour every place and club in the automobile district was reading the story of the race. The Evening Mail that afternoon said: "A noteworthy newspaper stunt was pulled off to-day by Motor Age, a Chicago trade weekly, which got here this forenoon ahead of all its eastern as well as western contemporaries, with the story of the grand prix. The papers reached this city at 9:45 o'clock this morning by the 18-hour train from Chicago, were met at the station by F. J. Wagner, the A. A. A. official starter, and distributed among the motor car branches, agencies and clubs before 11 o'clock. The story of the race included cables of each day's contest and took up with illustrations, maps, statistics, etc., eleven pages of the paper. A similar feat was performed by Motor Age on the occasion of each of the last two Bennett cup races."

PASSES SIMS BILL

Washington, D. C., July 2—Special telegram—One of the closing acts of congress was the passage of the so-called Sims bill, regulating the speed of automobiles in the District of Columbia, which President Roosevelt has approved. Under it, speed limitations are 12 miles an hour between intersecting streets, 15 miles through public parks, 8 miles across streets, 6 miles around corners, 4 miles on certain downtown streets, 20 miles outside city limits, 12 miles when meeting or passing any other vehicle, and car must be brought to full stop whenever driver or horse-drawn vehicle signals by raising his hand. Fines are as follows: First offense, not less than \$5 nor more than \$50; second offense within 1 year, not less than \$10 nor more than \$100, or imprisonment for not less than 5 days nor more than 30 days, at the direction of the court; third offense within 1 year, and for all subsequent offenses, not less than \$50 fine nor more than \$250, and imprisonment in workhouse for not less than 30 days nor more than 6 months.

GLIDDEN ON WAY BACK

Donor of Touring Trophy Passes Through Chicago and Talks of His Foreign Experiences

Chicago, July 2—Charles J. Glidden, donor of the trophy bearing his name and aspirant for the honor of driving an automobile 500 centuries in fifty different countries, passed through Chicago the fag-end of last week on his way to Boston to make a hurried preparation for participating in the A. A. A. tour. It is hardly probable he will drive his own car, for he hardly believes it will arrive in time. However, he expects to be "among those present." Of course, Mrs. Glidden was with him. The Gliddens got in Friday afternoon and were met at the Auditorium in the evening by President Temple and Treasurer Gunther of the Chicago Automobile Trade Association and a party of local newspaper men.

Chicago was the first automobile center Glidden had struck on his way back from Yokohama, Japan, and naturally he was in complete ignorance of the hacking the rules of the Glidden tour had received. While he had no complaint to make of the radical action of the committee in barring cars carrying fewer than four persons, he seems surprised that such action had been taken, declaring that when he had offered the cup he had made no such restriction, it being his aim to make the affair a test of a man's driving ability rather than the mechanical excellence of the car.

"The object of the tour and that which prompted giving the trophy was to encourage what I believe to be from experience and observation the best health-giving and health-sustaining recreation possible—that of touring with the motor car under conditions suitable for a person to make the tour with members of his entire family. Also to show the greatest achievement that the individual can accomplish with the motor car in line with plain, simple touring and not in racing or fast driving," declared Mr. Glidden.

"I believe in rational touring and in all my rambles I have been careful to observe the laws of the country. A tour such as the 1906 Glidden promises to be ought to bring out the best driver, for it will take careful work to maintain such an even schedule of running.

"My last trip was most enjoyable and I thoroughly enjoyed my Indian experience. I was received with great cordiality by the rajahs and other potentates and on one occasion, when 1,500 miles along, I was met by a courier in an automobile with a welcome from the reigning monarch. He had come some 200 miles and had waited several days for me to show up. At court the rajah could not do enough for me, giving me a palace to stop in. Another one had never seen an automobile and as soon as I took him aboard he asked me if I could do 60 miles an

hour, then began asking me about the Flatiron building in New York.

"One novel experience was in India, where you have to make a thorough inspection of your room before retiring in order to clear it of the snakes, scorpions and other reptiles and vermin. It seems the thieves there are organized and if you would enjoy immunity you must hire the chief of the band to protect you. Pay him 75 cents and he will walk around the house all night, warning the other thieves to keep their distance. He's well worth it.

"Strange as it may seem, I have had only two punctures in the last 8,500 miles. I make it a practice to change the rear tires every 3,000 miles whether they need it or not; the front ones come off every 6,000 miles. There is one front tire on now that has gone something like 8,000, and out of curiosity I am going to see how long it will last. They are English Dunlops. The roads in Japan are poor for touring purposes. I had expected it to be the land of flowers, but honestly I saw more flowers in San Francisco than I did in the land of the mikado."

BUFFALO GYMHKANA

Buffalo, July 2—The Buffalo Country Club had a successful gymkhana last Saturday. The contests were unique. In the chauffeurs' contest the prizes went to the employers instead of the drivers. The winners were: Robert K. Root, first; John M. Satterfield, second. Sixty machines took part in the parade, the winners being Frederick H. Stevens, first, and Henry H. Littell, second. The slow race was won by the car covering 100 yards in the slowest time. John M. Satterfield, who drove a 5-year-old machine with wire wheels, was the last under the tape. The water race was won by Mr. and Mrs. Seymour D. White. In this contest each driver's fair companion had to carry a glass of water. The winner was the person whose glass carried the most water at the end of the race. In the gymkhana the winners were: S. Spencer, first; Charles Williams, second, and Dr. W. H. Glenney, third. A thunder storm prevented the obstacle race.

ENDURANCE TEST ON COAST

Los Angeles, Cal., July 3—Special telegram—Of the 110 entries in the endurance run promoted by the Automobile Dealers' Association of Southern California last Friday and Saturday 101 started and eighty-one finished. Of these thirty-seven had perfect scores, tire troubles not counting. The run was held last Friday and Saturday, the route running to Riverside and return, a distance of 176 miles. A Pope-Toledo limousine won the prize for cars costing over \$2,500; a local-made car, the Tourist, captured the Hearst car for the best all-round work and also the association cup for cars costing \$1,500. A Dolsen four-cylinder car won the \$1,500-\$2,500 trophy; a Buick the runabout class, while a Frayer-Miller won the economy test.

ELEVEN FINISH IN GRAND PRIX

Brasier Makes Best Team Showing, While Fiat Lands Twice in First Five—Pair of Mercedes Placed—Drivers Nearly Blinded by Tar Dust on Sarthe Course

New York, July 2—Now that the grand prix is a matter of history, more complete reports of the great contest that was held on the Sarthe course Tuesday and Wednesday of last week are coming to hand by cable from Paris. It was almost impossible last Wednesday for New Yorkers to get more than the bare results, the excitement immediately after the finish of the contest being so great that the Frenchmen evidently forgot that people on this side of the Atlantic were anxious to learn the fate of the others outside of the first three. It was not until Thursday, though, that their curiosity was relieved. Then along came the information that of the thirty-two cars that had started in the big event only eleven had finished. There also was a slight revision of the times of the first three. The revised table of finishers was given as follows:

Order.	Car and Driver	Time		
		H.	M.	S.
1—	Renault, Sisz	12	14	07
2—	Flat, Nazaro	12	45	25
3—	Clement-Bayard, Clement	12	49	46
4—	Brasier, Barillier	13	53	00
5—	Flat, Lancia	14	22	11
6—	Panhard, Heath	14	47	45
7—	Brasier, Baras	15	15	50
8—	De Dietrich, Duray	15	26	01
9—	Brasier, Pierry	16	15	07
10—	Mercedes, Burton	16	18	42
11—	Mercedes, Marleaux	16	38	51

This would make the qualifiers for the Vanderbilt, Sisz in a Renault, Clement in a Bayard-Clement, Barillier in a Brasier, Heath in a Panhard, and Baras in a Brasier. It is said here that there is a possibility of the Brasier people declining the issue, in which event it will take some thinking to make up the French team, for Duray in a de Dietrich was the only other French finisher. This, however, is a question Chairman Thompson doubtless will settle before he leaves France. It is well known that the Hotchkiss makers would eagerly grab at the chance to send young Elliott F. Shephard over, for the first day of the race the young man made a grand showing. An upset the second day put him out of the running, but he luckily escaped injury.

That Sisz would win was a foregone conclusion after the little Renault man had forged to the front in the third round the first day. He handled himself well at all times, and when he passed the stands the first time around on Wednesday he was going at 92 miles an hour. He was out to win the race and took no chances. Driving carefully, he did not make the speed the second day that he did the first, and Nazaro picked up some 8 minutes on him. However, Sisz always had something up his sleeve and had more than half an hour to spare at the end.

Tire troubles, of course, were responsible for many of the drivers dropping out.

Every car had to wrestle with the problem, and it is said of Sisz that he changed nineteen times, but so skillful was he with the Vinet movable rim that he lost not more than 5 minutes at each operation. Accidents put several out of business. Right after rounding the curve at La Fourche on the second lap of the second day one of the front wheels on Teste's Panhard flew off. This caused an upset and Teste broke his thigh, several ribs, and injured his wrist. This perhaps was the most serious accident in the race.

The tar which was used on the road to put it in condition for the race raised mischief with the eyes of the drivers. The tar soon became dust and rolled up in miniature clouds, blinding the drivers despite the fact they wore goggles. Edmond perhaps was the greatest sufferer, and when he finished he was nearly blind.

There was a change in the order of finish as printed in the last issue of Motor Age. It seems that Heath was placed sixth instead of fifth, the latter position going to Lancia. This gives Italy two of the eleven places—second and fifth. The race proved to be anything but the snap anticipated for France, for of the eleven finishers four of them were outsiders—two Fiats and two Mercedes. It's true the Mercedes were some 4 hours behind Sisz, but still Burton and Marleaux managed to pull through and be credited with finishing, something twenty-one other cars failed to do. The Brasier team made the best team showing of any in the race, landing fourth, seventh and ninth.

BEFORE THE RACE

Paris, June 22—In view of the proximity of the Sarthe circuit to Paris, large numbers of people are proceeding to the course in automobiles, and the various towns around the circuit are choked with applications for garage room. The time from Paris to Le Mans is 5 or 6 hours comfortably driving, via Versailles, Rambouillet, Chartres and Le Ferté Bernard. The circuit has been thrown open to the racing cars once more from today, leaving just 1 week for practice. Complaints are made that the turning at La Fourche has been insufficiently banked and requests are being made for more cement. Rooms and apartments throughout the district are, as usual, scarce and expensive, this being of course only natural in view of the nearness of the circuit from Paris.

The official government authorization for the use of the Sarthe circuit and without neutralization has only just been granted. The certainty that this would be given has of course been known for some time, but in the first place the French automobile club took the bull by the horns and made

immense preparations—on paper—in order to bluff any attempt which might have been made earlier to stop the race project. This sort of procedure—that is, start first and get the authorization afterwards—is a very successful means of riding through France administrative methods, and is adopted by energetic foreigners with great gusto in all sorts of business deals in French commercial life.

The French club talked about erecting a huge garage close to its grandstand, which latter was to be the largest ever erected for an automobile race course. The first was easy, the second was considered more difficult. However, it has been done and the tribunes of the Automobile Club of France on the Sarthe circuit are the largest ever designed for any race course. Six thousand people are easily accommodated therein and under cover. The price charged for a box for six people is \$60 and a single place costs \$6 for the 2 days and \$4 for 1 day. Opposite is a large time-board, 80 feet square, where time will be put up as received from the various points along the course where telephones have been installed. The grand stand is 800 feet long and is flanked by two other stands belonging to the local clubs. Buffets, press rooms and telegraph offices complete the outfit. The telegraphic equipment of thirty operators accompanying the president on his official tours will be present for the press messages. Opposite the grand stands is the garage for extra cars, revictualling centers, medical service, and the closed park where the weigh bridge is installed. Behind this is a vast field which was lately covered with pine trees. It is now a camping ground let out for the many whose duties compel them to be constantly at hand. The proximity of the circuit to Paris has sent down immense crowds and the whole countryside is teeming with tens of thousands of visitors. Grandstands are erected everywhere, some 300 being dotted around the course, making an average of five per mile, resulting from private enterprise or public munificence.

At the time these lines are read the race will have been contested by the fastest group of racing cars the world has ever seen. Retrospective details can therefore present a certain interest in view of possible eventualities during the race. For French people and for the spectators in the race itself there will be two winners, the winner on the first day and the winner on the second day, for it is highly improbable that there will be a repetition on the second day on the part of one car of the giddy—almost staggering—speed, which must carry the winner over the line at the end of the first day's race. The greatest uncertainty remains in every mind regarding the probable winner. It might be easy to point out a few cars which surely will not win, but it would be idle to do so at this hour, and even betting men are refusing odds on some which seem certain of success. Some consider it will be a tire

race, especially those who have been over the circuit of late and have had a few breakdowns on route 157, the surface of which is covered with fine, sharp stones which all the sweeping in the world would not rid, let alone the goudronnage which has been applied in unstinted quantities.

The equipments and repair shops of the foreign contingents have caused admiration, especially the shop of the Itala men, where a portable engine with electric generator is proving its worth in gold as a handy field outfit. It supplies light, motive power and heat without danger in a district covered with pine saplings, the dry season having already been responsible for the starting of fires here and there.

The great crowds of people drawn to the circuit from all parts have caused another cessation in the racing trials—that is, the routes are shut to racing cars again tomorrow, until the race itself. This is a measure of prudence, but the drivers have seen enough during the past 4 days to show them the nature of the work cut out. At 5 a. m. on the morning of the race a pilot car will set out from St. Calais and another from the grand stand, to warn the commissaires, who are stationed at each 3 miles, that the race is commencing; then the crowd will be cleared from the course by the gendarmes, and the soldiers take their positions alongside the route at every 50 feet about. The commissaires must see that the course is kept clear. They also have to signal by means of flags. For instance, when one car is seen approaching another, a blue flag is held out to the first passing car, to inform him that he may be caught up. The commissaires are also to signal to approaching cars if any car breaks down within their beat. They also have to give a helping hand to drag them off the circuit. The commissaires also are charged to see that no supplies are taken on except at the given spots.

For the grand prix cars Michelin tires have been adopted by the Panhard, Fiat, Itala, one Clement, the Renault, three Hotchkiss and two Lorraine-Dietrichs. Hemery, in a Darracq, has adopted Dunlops, as have two Clements and the Vulpes car. Rigoly, on the Gobron car, has on Bergougnan tires. The remaining cars are fitted with Continental tires.

TALK TAX ON CARS

Buffalo, July 2—In order to bring down Buffalo's heavy tax rate, Mayor Adam and other Buffalo officials have been booming the plan of imposing a yearly tax on automobiles in this city. At the recent final hearing before the board of aldermen the proposed automobile tax was discussed. Former District Attorney Coatsworth represented the Buffalo automobilists at the meeting. He said they were not opposed to the tax. Attorney Percy S. Landsdown, who also appeared, proposed a number of restrictions on the operation of automobiles within the city limits, but his proposition was strongly opposed by others in attendance.

WHO'LL BELL THE CAT

English Tradesmen Waiting for Someone to Fight the Chauffeur's Commission Evil

London, June 21—Some outcry is being made at the present time, chiefly in the daily press, regarding the secret commissions which are such a prevalent feature of the motor business on this side. It is really nearly time that the evil should be properly tackled, since it has permeated almost every department of the motor business. About 18 months ago the Society of Motor Manufacturers and Traders passed a resolution to the effect that, in its opinion, it was "contrary to the best interests of the trade that commissions or discounts should be paid to any person not in the trade"; but it would be very nearly true to say that that was a pious resolution more honored now in the breach than in the observance.

In the higher flights of the game are well-known society clubmen and members of the aristocracy who make a very handsome income out of introducing their friends to manufacturers from whom, it is alleged, on their "recommendation" cars are purchased, every car bearing from 5 per cent to 10 per cent commission to the introducer for the business. In the lower flights we have the chauffeur, who insists on a similar toll when he takes his master's tires to be repaired or pays a bill for lubricating oil or gasoline. "Palm oil" is the principal lubricant in the motor business, and so long as competition left profits and prices where blackmail of this kind could be paid, little was said about it. Now, however, things are beginning to be cut, and with an eye to the future tradesmen are beginning to kick. But they do not kick openly, for they know that the chauffeur can make it very uncomfortable for them and to an extent injure their business.

In the chauffeur's hands tire repairs can easily become "unsatisfactory," oils give trouble, gasoline proves less than useless, etc., and consequently, while there is a lot of grumbling it is sotto voce. Each is waiting for somebody else to bell the cat, and all desire that the Society of Motor Manufacturers and the automobile club should do this. Probably the most effectual way to end it would be to ventilate the matter so thoroughly in the press that individual owners will take individual action to see that they are not being robbed, as very many of them are. The section of the trade in which the business is being taken to its greatest length is the second-hand one, but all are bad.

The latest development of the company promotion game here has been a squabble on the stock exchange of the usual dog-eat-dog type. The Alliance Motor Bus Co., which was floated about 6 weeks ago for \$750,000, was un-

derwritten to the extent of \$140,000. The public took no interest in the issue and not more than \$2,500 worth was subscribed publicly. On this fact becoming known the gamblers among the underwriters proceeded to sell out, calculating they would be called on to take up practically the whole of their contracts. But the promoters had evidently calculated also, and obtaining the names of the sellers of this bear rush, did not call upon them to take up any. When, however, they went to obtain the necessary shares on the market as against special settlement, they found the price against them had been put up to \$40. Investigation rapidly showed that they had been nipped in a "bear" squeeze, and, being members of the stock exchange, they appealed to its committee, but the committee, after investigating the whole affair, decided to take no action. In all probability no special settlement will be granted in these shares until the directors and their victims have come to some arrangement, so the matter is practically hung up sine die.

PARADE OF THE GOPHERS

Minneapolis, July 1—Last Friday evening a parade was held that for enthusiasm, size and smoothness surpassed anything of its kind ever given in the west. The parade, which was the fourth annual event of its kind promoted in Minneapolis, was this year under the auspices of the automobile club. Over 500 cars of all makes were represented—nearly half of the cars in the city. The procession turned out to be a great social affair, nearly all of the "400" getting out with their cars. The lamps were all lit and the cars were decorated with the club colors, crimson and white. Over all a fine, clear, new moon showed dimly, lighting the streets, so that in many places people were tempted to put out the street lights to give the colors their best showing in the half light. The occasion was not only notable because of the effects gained; prominent men from all parts of the state took part in their cars. Governor Johnson led the parade.

ESCAPE TAG LAW

Philadelphia, July 1—Philadelphia motor cyclists whose favorite stamping grounds are in the garden state, were gratified to learn that when the Freylinghuysen law went into effect they were no longer required to carry the big tag which the old law compelled them to exhibit at the rear of their machines. The new law failed to make any specific mention of tags on motor cycles, and the new motor vehicle department, when appealed to, ruled offhand that the old law applied. Several Jersey motor cyclists kicked, and put the question up to the attorney-general, who opines that the Freylinghuysen measure is practically a revision of the whole subject of automobile regulation, and that it repeals all former legislation of this class.



MOTOR AGE

309 *Michigan Avenue, Chicago

Published Every Thursday by the Trade Press Company

N.H. Van Sicklen, Manager — Chas. P. Root, Editor

Subscription Two Dollars a Year
Foreign Subscription Four Dollars

The Western News Company of Chicago — Its Branches Supply New Dealers

New York Office, 29 West Forty-Second Street
Official Organ of the American Motor League

Entered at the Chicago Postoffice as Second-Class Matter.

MOTOR AGE SCORES AGAIN

MOTOR AGE as usual outstripped its competitors in giving to the automobile world the result of the grand prix. The race was held in France on Tuesday and Wednesday of last week. At 1 o'clock on Wednesday Motor Age was on the streets of Chicago and at 11 o'clock Thursday every automobile garage and store in New York had copies of the paper, which contained a 2000-word cable story of the result of the 2-day race and eleven pages in all on the event, including pictures and descriptions of the course and the drivers and their cars, as well as a map of the course. The story was complete in all details and was before the public a full day ahead of the story printed by any other automobile paper; in fact, Motor Age was in the hands of its New York readers a day before the New York automobile papers. It was a complete beat and so acknowledged. In this connection Motor Age desires to say that it was so prompt in serving its readers that a local contemporary took advantage of its enterprise by using the story of the second day of the race, although rewritten and put under a Paris date. Motor Age set a trap and baited it well. The altered proofsheets now in possession of Motor Age are sufficient evidence of the deception practiced by its contemporary. The times as received by Motor Age, and as originally put in type, were altered slightly and so printed; the altered times were eagerly taken by the contemporary, which had not suspected the trap that worked so well.

IS IT WEAKENING?

THE ANNOUNCEMENT on the part of the Standard Oil Co. that it has decided to discontinue the sale of 74 and 76 degree gasoline may or may not have been occasioned by the passage of the free alcohol bill and the advent of the alcohol motor as a direct result of the passage of the bill. The decision of the Standard can have little effect one way or the other on the automobile business, unless it is to lower the price of gasoline generally. As

a matter of fact the majority of all the gasoline that has been used has been nothing better than stove gasoline and commonly known as 68, though sold as that of higher grade and at a higher price. Not one man in a hundred ever thinks of testing the specific gravity of the gasoline he purchases, and as long as his motor will hobble along in fairly decent style he remains satisfied. It is not at all unlikely the alcohol bill has had something to do with the announcement of the Standard company. That gigantic corporation knows all that is going on, particularly wherein trade is concerned, and the public may rest assured that whatever is being done with alcohol motors is fully known by the Standard and its officers. The Standard has a corps of most efficient trade detectives and shrewd officers. There is no reason to believe it will be caught napping and permit the sale of alcohol to such an extent as to endanger its own business.

FRANCE SATISFIED

FRANCE has promoted a big road race and, as it had hoped to do, has won it herself, all of which suggests the story of a woman who gave a card party, played herself and won the prize. It was a perfectly natural thing that the French club should wish one of its own makers to win such a big event, but in this affair and in pretty much all the contests that have been promoted by the French club the officials of that organization have not been over anxious to see an outsider win. It actually hurts a Frenchman to play a losing game, where the outsider happens to be the winner. He can stand it if one of his own proves successful, but it will never do to have an outsider show. The Frenchman has had his own way too long, but he will be laid low some time. Continental generosity is not at a premium, by any means, if reports are true. The great Herkomer tour, in which there were numerous prizes



for different contests, failed to produce a single prize winner outside of Germany except where an insignificant award was made to an English Daimler car. Is it to be supposed that not one of the foreign cars that took part in the tour should not have been able to prove a prize winner? It is either a blow to the pride of the makers of foreign cars or to the fairness of the German officials, upon whom the task of awarding the prizes had been thrust. Such criticism cannot be laid against either the Britisher or the American; they usually are more than pleased to see a visitor prove his prowess and are willing to greet him as a true sportsman. Not so your Frenchman; he simply isn't built that way. He wants his own way about running things and he generally has them run so that his show for success is by no means diminished. He doesn't warm up to the success of the other fellow if there is any chance for himself. As a matter of fact, the French club has exhibited a most ungenerous spirit in the matter of speed contests that either have or might have proved somewhat attractive to a foreigner.

THE GLIDDEN TOUR

BEFORE the readers of Motor Age shall have received this week's edition the big Glidden tour will have started from Chicago to meet the eastern contingent at Buffalo. There is already a representative entry list and there will be the usual large number of last-minute entrants, besides a number who will accompany the tourists but who are not officially entered. The tour ought to prove successful in all ways—it should and probably will be the means of determining some weak points in construction; it should and probably will be a means of awakening interest in the automobile as a means of road locomotion; it should and probably will show how bad the roads of the country are, and it should and probably will bring a large number of automobilists closer together. It is to be a peaceful invasion of a strange country—an educational tour. The rules to be observed have been decided upon with care, and if obeyed there ought to be no complaint on the part of the non-motoring public and the authorities of violations of laws. Speed has been tabooed, and so the element of danger will have been eliminated to great extent. There will be accidents, but if the contestants have regard not only for themselves, but for the public and the good name of motoring, the accidents will be minor affairs. Such a tour ought to be of immense benefit to automobiling, to the maker, to the public and to the contestant. It has been arranged with minute care, and if it is a failure in any way there does not appear to be any reason at this time why the committee in charge should receive blame. The tour and its after effects will be just what the contestants see fit to make them.



Gymkhanas may be popular in Buffalo, but "Jim Crows" are not in Nashville.

Queer, isn't it, if Germany should have had cold feet over the Vanderbilt in summer?

Maybe Germany hesitated about entering the Vanderbilt because Prince Henry wouldn't drive.

Sherman's march to the sea will not be a marker to Tucker's advance from Buffalo to Bretton Woods.

It is bad enough for a desperately hungry fish to swallow the bait without taking in the hook, sinker and even part of the line.

Just to show that motor car road races are not dangerous to the public, not a spectator of le grand prix was killed. It used to be the fashion to kill at least one or two at each such event.

Did you ever see a big, strong man hit a puny, little fellow? These beats of Motor Age are now such common affairs and so very, very easy that it is like getting money without working for it. These little things have been going on for a couple of years or so, what's more.

Coming Events

July 5-28—A. A. A. tour; Glidden trophy competition, starting at Buffalo July 12.

July 4-17—Automobile racing at Ostend, Belgium.

August 5-8—Touring car competition, France.

August—Circuit des Ardennes race, Belgium.

August 22-23-24-25—Annual New Jersey coast carnival. W. J. Morgan.

August 27-September 2—Brescia, Sicily, events. Automobile Club of Italy.

September 1-10—Auvergne cup competition, France.

September 2—Florio cup race, Brescia, Sicily. Automobile Club of Italy.

September 9-20—Automobile meet of Palenza, Italy.

September 15-16—Mount Ventoux hill climbing competition, France.

September 18—Touring car competition of Provence, France.

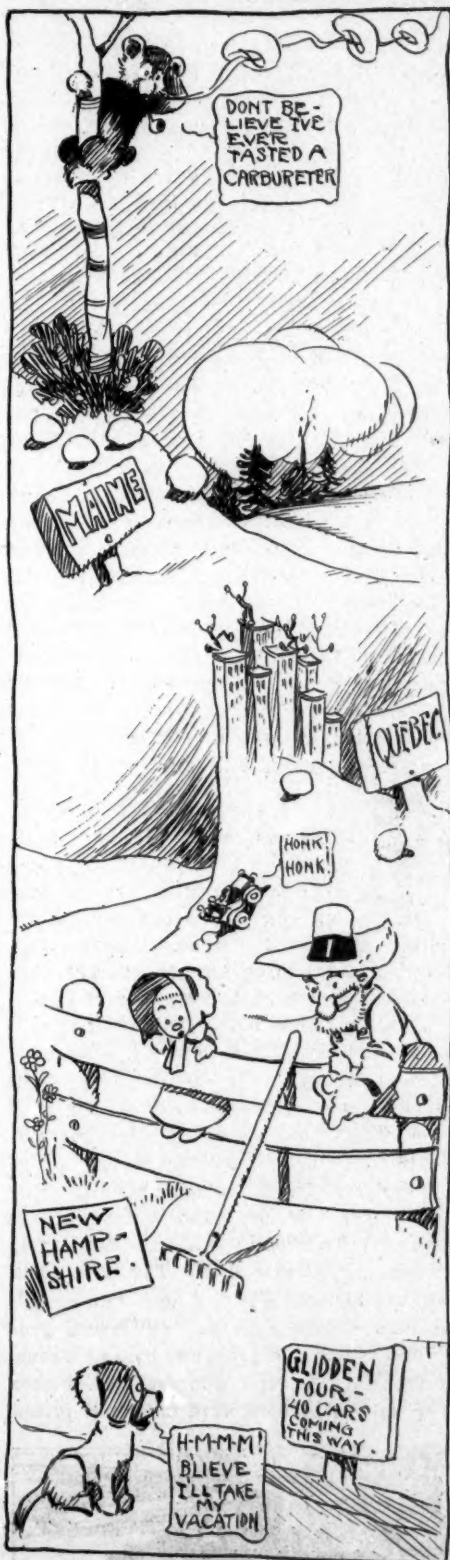
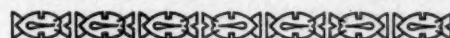
September 23—Semmering hill climbing competition, Austria.

September 23—Auto-Cycle Club of France cup race.

September 27—Tourist trophy race, Isle of Man. A. C. of G. B. & I.

November 1-16—Automobile show, Berlin, Germany.

IN ANTICIPATION OF THE GLIDDEN TOURISTS



The Gliddens are gliding, O ho! O ho! is appropriate just now.

There's a good alarm clock working in Chicago. The dealers' association heard it first.

The other contestants in le grand prix must have felt the Sizzling they got last Wednesday.

It's a safe bet that the first question Senator Morgan asked C. J. Glidden was: "Did you find any beaches in India?"

Senator Morgan believes in cylinder capacity as a basis for automobile contests. So would a crowd of beer-drinking Germans.

Three or four American-made cars were among the contesting vehicles in the Scottish reliability trials and received more than mere mention. They wouldn't have had a look-in in France or Germany.

For the next couple of weeks or more you will hear some awful tales of the condition of the roads in the United States and Canada. If the Gliddenites can find anything in Canada to surpass our own highways for rottenness Motor Age will be pleased to hear of it.

The Week

Later reports from Paris state that only eleven out of thirty-two starters finish in grand prix; three Braziers among the eleven; drivers almost blinded by tar dust.

Endurance test in southern California brings out 101 starters and eight-one finishers; Pope-Toledo, Tourist, Dolson, Buick and Frayer-Miller class winners.

Entries to Vanderbilt close with fifteen entries received from American makers; Italy nominates five and Germany three cars.

Scottish reliability trials prove great success, Cadillac, Maxwell and Reo coming through with perfect scores.

Sixty entries received for Glidden tour; Chicagoans complete plans for the pleasure part of tour to Buffalo.

Avant tram Latil wins French tour of industrial vehicles with figures of .004 gallons the ton-mile.

Detroit Automobile Club holds century test, many cars coming through with perfect scores.

Statistics show imports for year will reach \$4,000,000 and exports \$3,000,000.

C. J. Glidden, on his way back from Japan, passes through Chicago.

EBB AND FLOW OF CARS

Statistics Show that Imports for Year Will Reach \$4,000,000 and Exports \$3,000,000

Washington, D. C., June 28—The department of commerce and labor, through its bureau of statistics, says more than \$4,000,000 worth of automobiles will have been brought into the country during the fiscal year which ends with the present week, and more than \$3,000,000 worth exported during the same time. Figures of American foreign commerce in automobiles show the value of automobiles imported during the 11 months ending with May to have been \$3,502,244, and parts thereof, \$378,389, while exports thereof during the same period amounted to \$2,957,748. It is apparent, therefore, that the figures for the full fiscal year will show more than \$4,000,000 worth of automobiles and parts imported and more than \$3,000,000 worth exported.

Meantime the manufacture of automobiles in the United States has amounted to presumably more than \$26,000,000, since the census bureau recently issued a preliminary statement which shows the value of automobiles manufactured in the country in 1904 to be \$26,645,064. This figure includes amounts received for custom work and repairing and value of products other than automobiles; but as it does not include automobiles, valued at \$879,205, manufactured in establishments engaged primarily in the manufacture of other products, it may be safely set down that the value of automobiles produced in the United States approximates \$26,000,000.

The rapid increase in the use of automobiles is shown in a marked degree both by the figures of the bureau of statistics and those of the census bureau. The value of automobiles manufactured in 1900 is given by the census figures at only \$4,748,011, and in 1904 as above indicated. As before stated, the imports during the fiscal year 1906 will amount to more than \$4,000,000 worth, against less than \$2,500,000 in 1905, about \$1,500,000 in 1904 and about \$1,000,000 in 1903.

Of the \$3,000,000 worth of automobiles exported in the fiscal year just ending, about one-half goes to Europe and most of the remainder to Canada, Mexico, the West Indies and Australia. The details of distribution have been given from time to time in Motor Age. Of the imports, fully two-thirds came from France and practically all of the remainder from the United Kingdom, Germany and Italy, in about equal proportions.

The industrial effect in the United States of the increased use of automobiles, while it cannot be fully measured because of the large number of people employed in their care, repair, etc., is indicated in some degree by the figures of the census, which show that the number of wage earners in the automobile manufacturing establish-

ments of the country increased from 2,242 in 1900 to 10,239 in 1904; that the wages paid increased from \$1,320,658 to \$6,178,950, and the materials used, which of course largely represent labor, increased from \$1,804,287 to \$11,658,138.

The importance of the automobile in its relation to the commercial and industrial development of the undeveloped sections of the world is suggested by a study of the figures of exports of automobiles to the various countries and continents. Lack of transporting power, whether in the form of horses, canals or railways, has been one of the greatest obstacles in attempts to develop the mountain, desert and tropical regions of the world; and the fact that the automobile, whether built primarily for passenger transportation or transportation of freight, is being rapidly adopted in those regions in which animal power is scarce, suggests great possibilities in production and commerce through the use of vehicles of this character.

Reports from American consuls and others have shown the practical application of automatically-propelled vehicles in many of the comparatively undeveloped countries, especially in the tropics, including Mexico, the West Indies, South America, Africa, India, the Malay peninsula, Java, China, Japan and the Philippines, all of them sections in which animal power for transportation is extremely scarce and development delayed by reason of that scarcity. The proportionately large exportation of automobiles to sections of this character is a suggestion of the practical uses apparently being made in those countries of this class of vehicles. About 20 per cent of the automobiles exported from the United States during the fiscal year just closing went to Mexico and the West Indies, while only about 7 per cent of the other exports went to those countries.

The export trade in automobiles has rapidly advanced in recent years and suggests a probably rapid growth in the near future. The indications are the automobile may take the place in the export trade of bicycles, which has fallen nearly \$6,000,000 in value during the past 9 years.

LATIL TRUCK WINNER.

Paris, June 19—In view of the success attending the tour of industrial vehicles recently in Tourcoing, in which the Avant train Latil gained the first place for economy in consumption, with figures of .004 gallons the ton-mile, the French automobile club has expressed its intention to organize a larger meeting for 1907, including a tour around France. A large number of entries have already been made for this event. The Avant train Latil, as it is termed, is a truck, the front wheels of which are mounted behind the motor. It makes a very handy contrivance and does good work on the road. The trailing part of the car was loaded with a lot of sandbags to the registered weight which the car can easily transport. The weight is evenly distributed in this arrangement.

TEST ONE OF THE BEST

Scottish Trials Prove Highly Successful, the American Cars Making Fine Showing

London, June 21—The Scottish reliability trials which ended on Saturday afternoon proved about the most successful and most searching of all the tests of this kind which have been organized for the benefit of the British trade. The course, which was spread over 4 days, started and ended at Glasgow, and extended over 671 miles of the hilliest country in the British isles. Each day's run included one set hill climb, the gradients of these varying from one in six and a half to one in fourteen average. The minimum and maximum times between each compulsory halting point were set, infraction of which on either side entailed loss of marks. The maximum was set for an average pace of 20 miles per hour, the minimum for one which the experience of the club members themselves over the route had taught was a fair reflex of efficiency. The difference between this and similar trials up to date is that hitherto cars which stopped for any reason other than that provided by the rules, no matter how well they otherwise succeeded, could not be eligible for one of the medal awards. On this occasion the medal awards were independent of non-stop conditions. Six classes were provided for, but only five were entered for, the steam class being without an entry. In the others, price was the sole condition for classification.

No. 1, including all cars of a chassis price of \$1,000 or less; No. 2, \$1,000 but not more than \$1,400; No. 3, \$1,400 but not more than \$2,000; No. 4, \$2,000 but not more than \$2,600; No. 5, all exceeding \$2,600.

These were all for gasoline cars. The scoring was announced to be on the lines that 800 marks would be the maximum for reliability, 100 marks being awarded for the car which made the best time in its class on each hill climb, the others being allotted percentage in equivalent representation to the performance of the winning car. One hundred would be similarly allotted for the lowest fuel consumption per ton-mile over the whole course and a medal awarded to the vehicle in each class obtaining the highest aggregate marks under the following formula:

$$\frac{\text{Marks gained for reliability}}{\text{Total marks gained in hill-climbing tests}} + \frac{\text{Lowest gasoline consumption per ton mile in class}}{\text{Fuel consumption per ton mile}} \times 100$$

As showing the progress of the event it might be said that last year there were only three classes and forty-three entries. This time there were five classes and over eighty starters. In the event of a tie the matter would be decided on the comparative results obtained under this formula, which is probably that upon which the

medal awards will be made by the committee having this part of the contest under its jurisdiction:

Laden Weight of Cars in Pounds.		× 1,000
Aggregate of times taken in all hill climbs in minutes	Total gasoline consumption during whole trial in gallons.	

The following were the cars which got through without mechanical troubles:

Class 1—9-10-horsepower Cadillac, M.
Class 2—16-horsepower Albion, A; 10-13-horsepower Coventry Humber, A; 16-horsepower Maxwell, A.

Class 3—15-horsepower Darracq, A; 16-horsepower Sunbeam, A; 16-20-horsepower Argyll, A; 15-horsepower Siddeley, A; 14-22-horsepower Germain, A; 15-horsepower De Dion, A; 12-16-horsepower Wilson Pilcher, A.

Class 4—24-horsepower Albion, M, tire troubles over 1 hour; 18-horsepower Gladiator, A; 25-horsepower Siddeley, A; 24-30-horsepower new Arrol Johnston, A; 20-32-horsepower special Darracq, A; 18-24-horsepower Peugeot, A; 25-30-horsepower Iris, A; 28-horsepower Pipe, A; 20-30-horsepower Pilain, M; 30-40-horsepower Belsize, M; 30-horsepower Bell, A; 28-horsepower Spyker, A.

Class 5—30-horsepower Rolls Royce, A; 28-36-horsepower Armstrong-Whitworth, A.

M stands for a mechanical non-stop—that is, absolute non-stop but for stops for tire troubles.

A implies absolute non-stops, no stops of any kind having been made.

The most remarkable feature about the whole tour was the wonderful capacity of the modern motor car to surmount what would have been insuperable difficulties to any transport a few years ago. Although about forty failed to get through, their failure in no single instance was much more than an indication of bad luck. A point which will no doubt give pleasure on your side is the remarkably good showing made by the Cadillac, Maxwell and Reo cars. These did very good work indeed, especially in the hill climbs, and called forth a good deal of surprise.

SORE OVER THE HERKOMER

Berlin, June 19—After the first gush of surprise was over at the results of the Herkomer tour, the motoring world has begun to ask what was wrong with the heavy powered contingent that the plums should fall to the lot of the small fry. Surprise was followed by discontent and a shoal of vehement protests were entered, reminding one of snowballs thrown against a brick wall, so little effect have they had as yet on the powers that be. The news of the victory of Dr. Stoess came like a bombshell in automobile circles. W. Poege had generally been considered the likely winner and the Mercedes cars in general were considered favorites. Dr. Stoess, who is a lawyer in Zwickau, was considered an outsider and the Horch car was a dark horse with small chances of making a hit. Great discussions are already being hotly waged in the trade press and the drivers of the larger cars state with vigor that their cars were severely handicapped by the regulations, compared with the smaller cars. Hieronymus, the well-known Vienna motorist, states that his 90-horsepower Mercedes would have to run at the speed of 190 miles per hour in order to gain the same number of points as did the winner.

RUNS A CENTURY TEST

Detroit Automobile Club Promotes Affair Which is a Miniature Glidden

Detroit, Mich., June 30—The first of what is designed to be a series of century runs by members of the Detroit Automobile Club took place today, over twenty cars participating. Eleven finished with perfect scores, but one accident took place, and that was not a serious one. The weather was ideal for the occasion and the roads were in better than their usual condition. The course was from the Hotel Cadillac, Detroit, to Ypsilanti, Saline, Ann Arbor, South Lyons, New Judson, Novi, Farmington, Orchard Lake and the home of the club on Pine lake, a distance of almost exactly 100 miles. The rules of the event provided for a schedule between the four controls, and each car deviating from this was penalized. The legal rate of speed was proscribed for the entire distance, and any infractions meant disqualification. The start was optional with the owner and driver of each car, and the various entrants left the city between 7 and 10 a. m. Edwin S. George, in a Packard, was the first to get under way, the schedule being adhered to from start to finish. He left the Cadillac at 7:05 and arrived at his destination at 2:05. Those who achieved perfect scores were as follows:

Class 1, cars costing upward of \$2,500—Edwin S. George, C. A. Ducharme, Sherman L. Depew, Gilbert W. Lee, A. R. Welch, J. W. Thompson.

Class 2, cars costing from \$1,000 to \$2,500—John P. Schneider, C. B. Davis, E. D. Emmons, E. B. Finch.

Class 3, cars costing \$1,000 or less—Harry Skillman.

The occasion was made the formal opening of the club's home on Pine lake, near Pontiac, and the organization held open house all day, many other members touring out to watch the competitors finish their run. A trouble wagon followed the final starter and assisted one car during the event, the Cadillac of E. W. Stoddard being driven into a closed bridge in Ypsilanti and losing a wheel before Mr. Stoddard could stop its career. Assistance disqualified the car, although it finished nearly on time.

The rules governing the contest were patterned after the Glidden—modified, of course, to meet the local conditions. Each entrant had to be the owner of a car and a member of the club. Either he or a son of a member of the immediate family had to drive. The schedule arranged was a stiff one, each contestant being required to keep within the pale of the law. A car failing to finish at the time fixed by the schedule was penalized one point for each minute required to complete the contest in excess of the time fixed by the committee. A penalty of two points for each minute too soon was exacted. The aim was to have the number of points

awarded be the number of minutes allowed for each control, so at the end of the tour a perfect score would be equal to the sum of the number of minutes allowed for each control of the route.

Entrants had to conform to all laws and ordinances and the rules of the road, and any entrant violating any of the provisions of the rules, or who failed to show due consideration toward other participants in the tour or other users of the highway, was liable to disqualification. Arrest for a violation of the speed limit laws or of any law or ordinance meant possible disqualification. No repairs, adjustments, replacements or replenishments were allowed during the stay in the controls. One hour was allowed at Ann Arbor for luncheon.

BIG YEAR IN MINNEAPOLIS

Minneapolis, July 2—One million dollars' worth of automobiles will be sold this year through Minneapolis houses. This is the estimate of one of the oldest and most conservative firms in the city, which has been identified with the automobile business for 5 years. In the city of Minneapolis, and in the territory supplied by Minneapolis houses, it is estimated that the million dollar mark will be easily reached by the volume of 1906 sales. This immense business does not take into consideration the sales handled by St. Paul houses. It is true there are more jobbing houses in Minneapolis, and more firms selling over exclusive territory throughout the state. The city will also take more cars than the city of St. Paul; but estimates made recently indicate that the business handled from St. Paul will reach fully \$500,000. The demand for big cars in the Twin cities has been unprecedented. Over 100 of the largest type of touring cars have been sold in Minneapolis this year, and on a basis of \$3,500 each, this makes up a big part of the total of sales. The Haynes Automobile Co., handling the White steamer, has disposed of forty-one of the big cars this year. The Caplin agency, handling the Royal Tourist, has turned out a number of them; the Barclay Automobile Co. has sold practically every Thomas Flyer it could secure; the Moulton-Jordan Co. has placed a number of big Peerless cars. No estimate is made of the number of small cars sold in Minneapolis.

FREE ALCOHOL DISTILLERY

Topeka, Kas., July 2—Governor Hoch, of Kansas, in an interview today, favors the establishment of a state distillery for the manufacture of denatured alcohol. While he does not state he will ask the next legislature, should he be re-elected governor this fall, to pass such a measure, he believes it a good thing. Kansas, it will be remembered, passed a bill for the establishment of a state oil refinery, but the project was knocked out by the courts. Now the governor figures on giving the Standard a little competition on the side.

VANDERBILT CUP ENTRIES CLOSE



New York, July 2—With the receipt of this morning's mail at the office of the chairman of the Vanderbilt commission, which was given out as marking the close of the entries for the third annual contest for the Vanderbilt cup, nominations only two national teams had been made. The Automobile Club of Italy had named a full team of five, and fifteen candidates for places on the American team had sent in their entries and paid an entrance fee of \$1,000 each. The entry of a complete team of five from France is expected, Chairman Thompson, of the commission, having gone to Paris a month ago to arrange for the acceptance of entries from the French makers. It was understood that French entries would be accepted in the order of their finish in the grand prix, as follows: Renault, Clement-Bayard, Brasier, Panhard, Brasier, de Dietrich, Brasier. The first five named have the first call for places on the team, with the last two as substitutes. It is said that all but the Brasiers, whose past policy has been to stick to home contests, will take advantage of the places won. Should the Brasier people not heed the appeal E. B. Gallaher, their American agent, has forwarded, urging that the cars be sent over, there would be a chance for the commission to accept the entry of Hemery and a Darraq.

It was said that E. S. Partridge had gone to England to arrange for the entry of an English Daimler by the British club and that the Napier Co. of America was making similar efforts toward securing the endorsement of W. M. Hilliard and a Napier. No word has come of either.

Germany also will contend for the Vanderbilt cup, a cable having been received by the Automobile Club of America from the German club stating that the entry of three Mercedes cars had been mailed. It is assumed that two of them are on for Robert Graves, who will employ Jenatzy, and Foxhall P. Keens, who will drive himself. It is guessed that the third may be for J. B. Worden, who competed last year. The fatherland delayed so long in filing these nominations that it was believed here in New York that the Germans had a case of cold feet. They never did go into ecstasies over the classic and have depended upon Americans who owned German built cars to represent them. This undoubtedly will be done this year, for there has been no preliminary gossip of the Germans going in for themselves. Whether or not the six-cylindere Mercedes that are now in the shop will be sent over is a question. It is hardly

thought probable, though, that this will be the case.

Germany's decision to be represented makes the Vanderbilt a truly international race, and if Chairman Thompson can induce England to put in a car there can be no question but what the American classic will be greater than the grand prix.

Fifteen American candidates have been nominated for the eliminating trial on September 22 for places on the American team. That our makers have come to the realization of the seriousness of the contest is attested by the fact that all but two have built special racers, these two pinning their faith to the luck and endurance of cars which are practically stock models.

Two of the Thomas cars—the entries of C. A. Coey and of Mr. Thomas himself—will be driven by famous French pilots. Coey will leave his fate in the hands of Herbert Le Blon, who was at the wheel of a Hotchkiss in the grand prix, while Mr. Thomas will pin his faith to Caillois, who finished second to Thery in the 1905 Bennett cup race.

The Maxwell-Briscoe people will, like the Locomobile folks, have two cars, from which they will make an eleventh hour pick. The latter have twin cars. The two M.-B. candidates are of radically different construction. One car has an engine with twelve horizontal, opposed cylinders of 6¼ inches bore and 6¼ inches stroke. In this car the cylinders are placed crosswise, six on a side. The second car has eight vertical cylinders of 5-inch bore and 5-inch stroke, placed in a line fore and aft, or a doubling up of the Maxwell standard four-cylinder car. For the twelve-cylinder car it is claimed that it has the largest piston displacement of any automobile engine yet made.

The Maxwell and B. L. M. camps have yet to name their drivers. It is said that the Locomobile entrant may possibly be changed to an individual having the purchase of the racer in contemplation. The absence of a White entry is a disappointment. Walter White had designed and built a new racer, but the verdict of the head of the company was needed for its nomination. It was evidently not forthcoming.

F. E. Stanley denies that he has built or intends to build a Stanley racer for the two Cape May A. C. members, who threatened to break into the race with one of these cars.

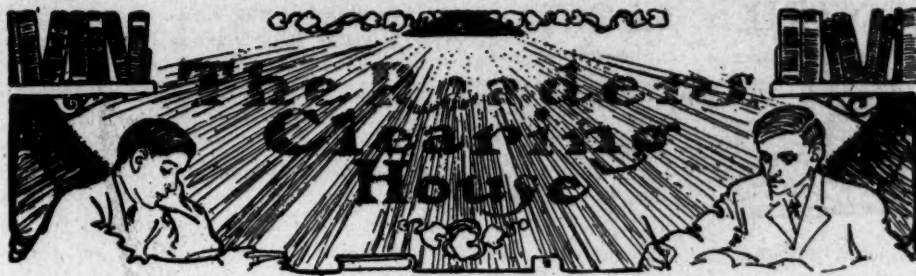
Specifications of the Oldsmobile racer are still withheld. Whether a four-cylinder or a six-cylinder will carry the Olds colors is not yet decided and is dependent, it is said, on the outcome of some constructive work having to do with a six-cylinder design now in progress.

A. L. Riker, designer of the Locomobile cup candidate, tells your correspondent that everything but the engine will follow last year's car. He says: "The engine will have so many improvements that it will be practically new. Though we rate it at only 90 horsepower, it will show 125. The car will be able to get away much more quickly at the start and after a slowdown than last year's car. We have built two cars. Why not enter them both? Just tell me where we could get a driver who would be willing to hang back for emergencies and not go out from the start to win the race for himself. We are willing to stand or fall on one car, and will keep the other in reserve for any emergency that may arise up to the last moment. The cars will be finished and ready to go on the road in about 30 days. I have not the remotest idea as to what Dr. Thomas intends to do."

Of the fifteen entries named, five of them are new in the cup racing game—Apperson, Frayer-Miller, Maxwell, B. L. M. and Oldsmobile. Of the others the Thomas and Haynes qualified for the team, but were discarded by the commission. The Christie, Locomobile and Pope-Toledo were in the finals, while the Matheson was entered in the trial but did not start.

AMERICAN NOMINATIONS FOR VANDERBILT CUP RACE

Entrant	Club	Car	H.P.	Driver
Edgar L. Apperson, Kokomo, Ind.	Chicago A. C.	Apperson	90	G. H. Robertson
W. J. Miller, Columbus, O.	Columbus A. C.	Frayer-Miller	110	F. E. Moscovics
Oscar S. Lear, Columbus, O.	Columbus A. C.	Frayer-Miller	110	E. H. Belden
Julius F. Stone, Columbus, O.	Columbus A. C.	Frayer-Miller	110	Lee Frayer
Harry S. Hout, New York City	Buffalo A. C.	Thomas Flyer	115	Montague Roberts
C. A. Coey, Chicago	Chicago A. C.	Thomas Flyer	115	Herbert Le Blon
E. R. Thomas, Buffalo, N. Y.	Buffalo A. C.	Thomas Flyer	115	G. Caillois
Maxwell-Briscoe Motor Co., Tarrytown, N. Y.	New York M. C.	Maxwell		Not named
S. T. Davis, Jr., Bridgeport, Conn.	A. C. of Am.	Locomobile	90	Joseph Tracy
Walter Christie, New York	A. C. of Am.	Christie	110	Walter Christie
Elwood Haynes, Kokomo, Ind.	Chicago A. C.	Haynes	50	Frank Swigert
George Moore Smith, New York City	A. C. of Am.	Oldsmobile		Ernest Keeler
Breese, Lawrence & Moulton, New York	A. C. of Am.	B. L. M.	90	Not named
Matheson Motor Co., Wilkesbarre, Pa.	A. C. of Am.	Matheson	60	Robert Mongini
A. A. Pope, Boston, Mass.	A. C. of Am.	Pope-Toledo	120	H. H. Lytle



HOT TUBE IGNITION

Bradenville, Ill.—Editor Motor Age—Before I became a reader of Motor Age I knew nothing of the gas engine, but the information of its possibilities interest me. I believe it would prove an ideal power for farm use if some of the objectionable features could be eliminated. The different articles on ignition indicate annoyance from this part. The jump spark, aside from its first high cost, seems to cause trouble; likewise the make-and-break. I have seen mentioned the ignition tube and would like to know how it works and if it is a success. I am told there is trouble in making a two-cycle motor tight enough around the crankshaft to prevent the gas from escaping. Is this the reason the two-cycle motor is not more used? Is there such a thing as a double-acting motor and is it a success? Would not a lighter flywheel be more effective and do away with storing up so much energy, only to be wasted? Would it not be possible to put on a spring clutch between the motor flywheel, which might be very light, and the countershaft, with a very heavy flywheel on the latter? By this means the motor could respond to impulses immediately and transmit the power to the countershaft gradually. By having a card and pencil attachment, the stretch and recoil of the spring could be measured accurately, showing the power at each stroke. —J. M.

The hot tube has been discarded almost entirely and other forms of ignition installed in its place. The hot tube is what it is termed, a tube entered into the combustion chamber and kept at intense heat by means of a torch from the outside. It is reliable enough, except when a strong wind blows and interferes with the torch flame. In addition there are no means of advancing and retarding the point of ignition, so that this form of ignition does not permit economy in operation and does not give good control of the motor. The two-cycle motor is a decided success if properly made and will work for years with little or no attention. Its merits are becoming recognized more and more and it is being used in automobile construction to a considerable extent. Double-acting motors, similar to steam engines, have been made, but motors with two pistons, the explosion coming between the pistons, are nearer the correct thing in the double-acting line than anything else. The motors in the Gobron-Brillie cars are made this way and Gobron-Brillie cars are

recognized as among the leading French cars. Referring again to the matter of ignition, it might be said that if the make-and-break and jump spark forms of ignition were not so good as are known they would not now be in use. The inquirer is referred to the issue of May 31 of Motor Age for information about flywheels. The matter of flywheel is determined largely by the design of the motor. Motor Age can see no advantage in a spring clutch as the inquirer would use it; spring clutches have been used for many years.

USE OF GRAPHITE

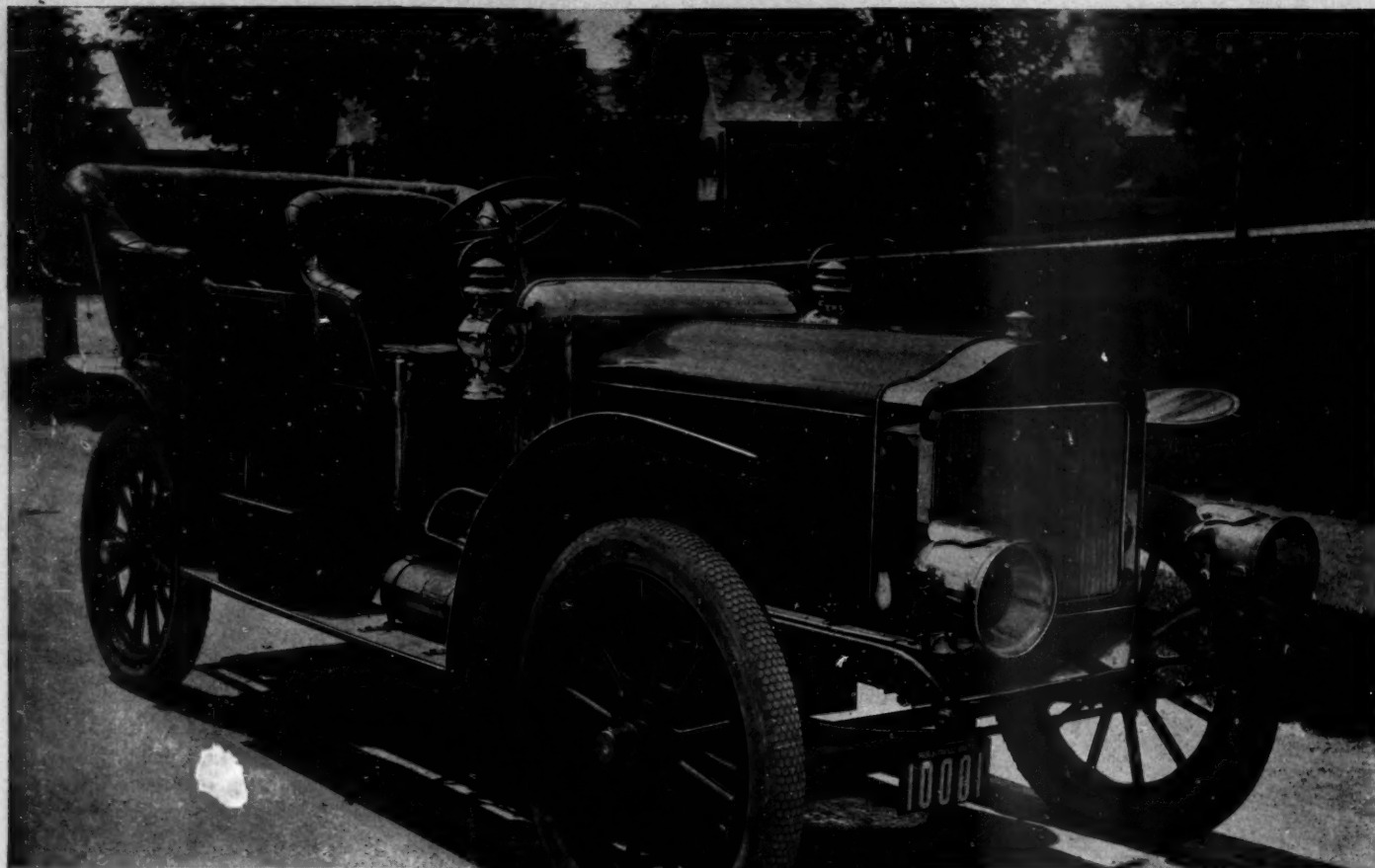
Jersey City, N. J.—Editor Motor Age—As the question of lubrication is such an interesting one it is more than likely that every one of your readers has read the article on "Motor Lubrication and Lubricants" as imparted in a paper read by J. W. G. Booker before the Auto-Cycle Club of England and reproduced in Motor Age. Mr. Booker stated that "there is no lubricant in existence capable of successfully standing a temperature 1,500 to 2,000 degrees centigrade or 3,000 to 3,500 degrees Fahrenheit, which is the average temperature of the explosion at its hottest point." Of course Mr. Booker had in mind oil lubricants, and it may be well for all users of automobiles and motor cycles to bear in mind that pure flake graphite is the only lubricant that will withstand these high heats. Graphite is not affected by heats that would readily liquify the engines. Graphite fills up the microscopical inequalities of the bearing surfaces, making a graphite-to-graphite bearing rather than a metal-to-metal bearing. This permits the use of an oil of less viscosity and even less oil. It has been noted that where the pistons have been removed from gasoline engines and the walls of the cylinders thoroughly rubbed with graphite and the surfaces of the piston as well that when the parts were assembled the engine ran with greater power, better compression and the effect was not momentary but quite lasting, showing that the graphite adhered most tenaciously and was capable of great endurance. As between roller bearings and plain surface bearings it may be of interest to your readers to know that in some tests lately made it was found that the use of a limpid oil with graphite will reduce friction to one-third that of the roller bearing. We enclose a reprint from May Graphite which will more fully show you the result of the tests mentioned.—Joseph Dixon, Crucible Co.

The article referred to says: "The Oc-

tober, 1905, issue of Machinery contains a report of a series of tests on roller bearings, made by Professor C. H. Benjamin, at the Case School of Applied Science, which are of especial interest in view of certain results which have been obtained by Professor Goss from plain bearings lubricated with kerosene and Dixon's flake graphite. Professor Benjamin's experiments were made upon several different kinds and sizes of roller bearings in common use. The purpose of the experiments was to determine the friction developed by such bearings when run under different conditions of load and speed. The apparatus employed was similar to the well-known Thurston oil testing machine, and was in every way well adapted to the purpose for which it was used. Professor Benjamin's reputation as an experimenter, and the highly refined character of the apparatus he employed, leave no question as to the accuracy of his work. In the results which were obtained by Professor Benjamin from the use of roller bearings 1 15-16 inches in diameter, in comparison with those obtained from the step bearing testing machine made use of by Professor Goss in connection with his study of graphite under similar conditions of pressure, it was demonstrated that the co-efficient of friction developed by the roller bearings was greatly in excess of that developed by the use of graphite and kerosene in a step bearing. Thus, when the pressure is 40 pounds per square inch, the co-efficient of friction for the graphite and kerosene is .00459, while the average co-efficient for the two-roller bearings is .018, or 3.92 times greater. When the pressure is 50 pounds per square inch the co-efficient of friction for the graphite and kerosene is .00442, and for the roller bearing .0175, or 3.95 times greater. There are no conditions which can impair the value of this comparison except that a higher speed was employed with the roller bearing than with that which was lubricated. But as the co-efficient of friction of the lubricated journal generally diminishes with increase of speed, a correction of this would make the difference in results greater. The step bearing was able to carry a load of 110 pounds per square inch, while the greatest load carried by the roller bearing was 61 pounds per square inch, or only 55.5 per cent as much as that of the step. Professor Benjamin also made tests of plain bearings and found that "the friction of roller bearings is less than that of plain bearings."

"There is no secret in all this. The plain bearings experimented on by Professor Benjamin were undoubtedly lubricated with an oil possessing considerable body, whereas in the presence of graphite a very light oil will suffice. The friction of lubricated journals is largely a matter of viscosity of the lubricant. For any given service, the use of graphite will always present a reduction in the viscosity of the liquid lubricant and hence a reduction in friction."

AUTOMOBILE DEVELOPMENT



THE 1906 ROSS STEAMER

LOUIS S. ROSS, Crafts street, Newtonville, Mass., who gained much prominence a year ago by the noteworthy performance of the Ross steamer on the Ormondo-Daytona beach in Florida, is now building steam machines, on regular touring car lines, intended for five and seven passengers and carrying a vertical two-cylinder engine that generates 25 horsepower. The design of the machine is largely fashioned after that of gasoline cars. All machinery is carried in front beneath a large, easily removable bonnet. In front is the boiler; in the rear of this comes the motor. Extending to the back axle is the universally jointed propeller shaft transferring the drive from the crankshaft to the differential in the live axle. By adding a vertical-tubed false radiator in front a commendable likeness to a gasoline car has been achieved.

The car framework comprises two pressed steel side pieces suitably narrowed alongside of the motor to increase the turning angle of the car, and held together by three pressed steel cross members, one at the rear and two others in the center. In front the framepieces are tied together by the flanged steel plate which serves as a support for the boiler and by the forged steel pan on which the engine rests, both of which pans are securely riveted to the framepieces. Supporting the frame are four semi-elliptic springs. Those in front are of eight leaves, the longest being 42 inches long. The

back spring consists of nine leaves with a useful length of 48 inches. English steel is used in the leaves, each of which is made 2 inches wide. The rear spring is shackled to the framepieces at both ends, thus relieving them of any possible driving strain and leaving to them the sole service of giving an elastic suspension to the car. The front springs are conveniently attached. Drop forged spring hangers are everywhere in use. The front axle is a steel forging, straight from end to end, and carries vertical hubs for the steering knuckles. The rear axle is of the floating type, in which the casing carries the entire car load, the drive shafts within the casing serving only in the propulsion of the wheels. This axle is trussed and reinforced at the casing for the spur gear differential. It revolves throughout on Timken roller bearings packed in grease and in dustproof casings. Should dissembling be necessary the drive shafts and differential are removable without taking the axle down or removing the road wheels. Timken roller bearings carry the front wheels. The steering gear is of irreversible worm and sector type. Road wheels in front and rear measure 34 inches in diameter and carry 4-inch pneumatic tires.

In the absence of chassis illustrations the reader will have to follow from these lines the general layout of the power parts and transmission scheme. The tubular boiler is carried directly above the front axle on a steel pan already referred to. The boiler, of the tubular type, has a 24-inch diameter and 14-inch height. Beneath it is the burner and the lighting requisites. The burner is a one-piece casting entirely encased and enclosed and is automatically controlled by a heavy diaphragm, maintaining the steam pressure at any desired point. A novel firing-up system is used. The hand torch or alcohol drip cup, so often used in steam cars, is wanting. A small Bunsen burner is connected with the acetylene gas supply or Prest-o-Lite gas tank and can be instantly ignited with a match regardless of weather conditions or high winds. In a few seconds after it is lighted the main fire will be perfectly ignited. The gasoline for the fire is carried in a 25-gallon tank on the back of the chassis and gasoline is forced to the burner by air pressure. There is a water-jacketed air compressor automatically connected with the engine which supplies the pressure for the gasoline tank, maintaining it at the desired point. On the top of the gasoline tank is an indicator which at all times registers the amount of fuel in the tank. Besides this regular air compressor tank there is an auxiliary air tank which allows of the filling of gasoline and firing

up without the use of any pumping by hand and, the maker claims, permits of the car standing for several days with steam up ready for immediate use.

The water supply, 40 gallons, carried in a tank of heavy gauge copper placed cross-wise of the car beneath the front seat, is furnished to the boiler by a positively driven pump on the left side of the motor and gear-driven off the crankshaft, the large spur gear Q being shown in the motor illustration. This pump is of large diameter, works comparatively slowly, at not more than half the crankshaft speed, and its connecting rod and gears are carried on Hess-Bright bearings. The pump is of the variable stroke type. An auxiliary Marsh steam pump permits of filling the boiler under conditions when the water becomes low, or should the engine pump through any cause become inoperative. The water tank is divided into several compartments to prevent undue splashing of the water when running over rough roads. There is a fusible plug which melts and gives warning of low water and so prevents injury to the boiler. This plug has a steel shell which can be renewed at any time.

Passing to the motor, which is carried just in rear of the boiler, the illustration affords a good general conception of it. It is of the two-cylinder type, each cylinder D having 4-inch bore and 5-inch stroke. The motor has a cast platform F on which it rests. Rising from this platform are four supports E for carrying the cylinder casting, the cylinders being cast together. The crankshaft H is a stoutly made-up piece running on Hess-Bright bearings and carrying counter weights K on the throws. The connections from this shaft to the pistons are of regulation steam engine design. The piston rod A is coupled to the drive rod B through a Hess-Bright bearing, working within the guides C, and the drive rod B is in turn provided with similar bearings where it is attached to the crankshaft. The valve gear for regulating the entrance of steam to the cylinder is controlled by a standard Stephenson link motion controlled by four ball bearing eccentrics. The rods PP connecting with the valves can be seen. The throttle control is on the top of the steering wheel and to the right of the driver and beside the emergency brake lever is the lever for reversing the engine. The lubrication of the two cylinders is through a positive acting plunger pump with variable stroke and running at the same speed as the water pump, or half of the crankshaft speed. The pump axis is carried on ball bearings.

In transmitting to the back axle a standard propeller shaft is connected by a universal joint with the back end of the crankshaft. This shaft again connects by universal joint with the short shaft carrying the pinion on the side by which the drive is communicated to the differential. The universal joints are of steel and bronze

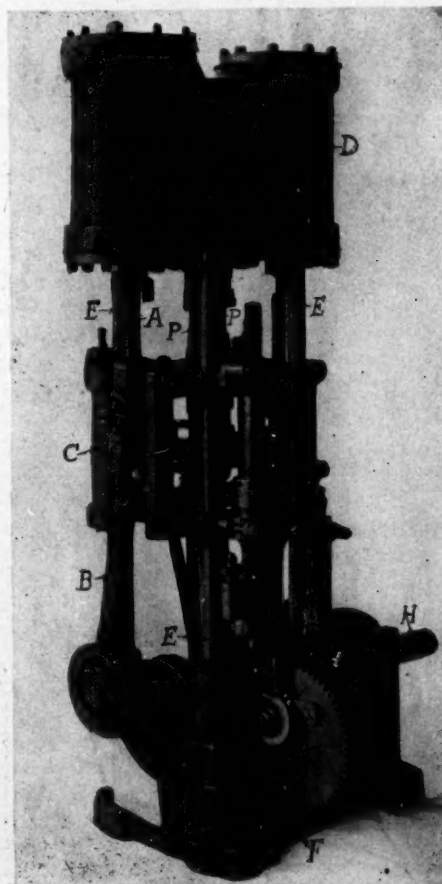
construction, are packed in grease and housed in dustproof cases. The forward joint carries a flange ring which serves as a drum on which operates the brake for regular use. The brake is applied by pedal. In the hubs of the rear wheels are expanding emergency brakes operating within steel drums. These brakes are lever applied.

Nothing out of the ordinary is found in the body work other than that it is entirely free of machinery or tanks. It can be removed after taking out four bolts, leaving the chassis, with its boiler, motor and water and gasoline tanks, as well as operating devices, all intact. The running boards are made continuous with the front and rear fenders; the dash is of rolled brass, and the bonnet is hinged at both sides, making the motor and boiler equally accessible. A false radiator, equipments, and other parts are in keeping with the machine.

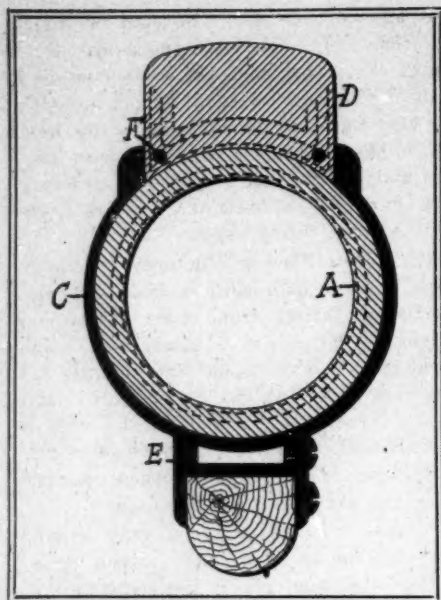
YOUNG'S ROTARY CARBURETER

Manufactured by the Culver Novelty Co., Culver, Ind., Young's rotary carbureter is conspicuous in that a float is not used, a check valve admitting and stopping the gasoline flow; in that in the mixing part is a series of fan wheels that rotate in opposite directions and aid in mixing the gasoline with the air; in that additional air can enter through a spring-controlled auxiliary air valve; and in that the air and gasoline supply are regulated in harmony—giving more air means giving more gasoline, and allowing less air to

enter means a restricting of the amount of gasoline entering. The sectional drawing tells the complete story. Air entering by way of the funnel opening passes through the port in the throttle E, then, rising, to the left through the passage into the mixing chamber C, where it encounters the mixing wheels shown and finally by way of the exit opening B advances to the motor. Gasoline feeding by gravity from the tank in the car enters a duct, the passage of which is controlled by the lower pointed end of a vertical needle valve. The passage from this needle valve leads through a vertical pipe slightly to the right of the stem of the valve and which pipe is controlled by a second needle valve. This latter valve is inserted in the suction air valve, so that as the air lifts the valve so is the gasoline needle lifted. On the top of this chamber is shown a series of ports and, beneath them, an auxiliary air valve, which valve is ordinarily held against the top of the casing by the small coil spring surrounding its stem, but, with high motor speeds, it is pulled down, opening or uncovering the ports and permitting extra air to enter. The harmonious action of the needle valve and the throttle, with its air opening, is explained by means of the link connections between the throttle lever D and the stem valve. When the lever D is moved, opening the port, the valve W is raised, allowing greater quantities of gasoline to pass and, with a small air opening, there is a small opening of the valve W. The connecting links of the gasoline valve W and the throttle E are slotted, permitting of the driver of the car varying the opening or closing relations existing between the gasoline and air supply. After the gasoline passes the valve W it is checked from entering the mixing chamber by the check valve, and not before the suction of the motor raises the valve can gasoline actually flow. It will be noted, then, that the needle valve W but regulates the size of the passage for the gasoline to flow through, the same as the throttle regulates the size of the air opening. Between the mixing chamber and the motor there is not a throttle, the throttling of the air and gasoline taking place separately before they are mixed. In the mixing chamber C are fan-spoke wheels mounted on a hollow shaft and carried on ball bearings. These wheels are rotated by the passage of the mixture to the cylinders, their rate of revolution ranging between 1,500 and 2,000 turns per minute. The hollow shaft carrying these wheels is filled with a saturated wick and, through the medium of a compression oil cup, the careful lubrication of the wheels is assured. The construction of the several rotating wheels is such that the spokes are set oppositely in adjacent wheels, causing them to rotate in opposite directions. Surrounding the ends of the spokes is a broad, conical, metal band which prevents the gasoline, by cen-



ENGINE IN ROSS STEAM CAR



ELDER'S COMBINATION TIRE

trifugal force, being thrown to the outside of the chamber and not well mixed with the air, and further directs the mixture currents toward the center of the next fanwheel. The carbureter is compact and occupies little space.

CUSHMAN'S CARBURETER

Though not familiarly known in the automobile field the Cushman carbureter possesses many simple yet meritorious features. With a few slight changes it has been adopted on the Olds two-cycle machine, it giving better results on that particular motor than many of the other makes. The two sectional and a couple of part views show its general layout. The carbureter is characterized by the absence of springs, of varying tension, and its large air passages, the latter not being restricted in any particular. Air entering at the base through an opening B has passage through a large vertical tube in which it passes the tip of the horizontal spraying nozzle D and, turning, exits to the motor through the throttle opening controlling the exit passage C, to which the motor piping is attached. The float chamber A is at one side, a sloping passage H connecting it with the nozzle. Gasoline enters at K, being under control of the pointed tip of the needle valve, which is surrounded by the float L. A drain cock is placed in the base of the float chamber at M. The nozzle or needle valve E has a finger wheel on its outer end, by which adjustments are made, and a feature of the nozzle location is that being in the center of the large mixing chamber any gasoline passing out and not being used is free to drop out through the air opening B and to fall to the ground. The throttle valve G forms a lining, as it were, to the mixing chamber, having a port for corresponding with the exit C to the motor. To the top is attached the arm F for controlling it. Besides controlling the passage of gas the throttle controls

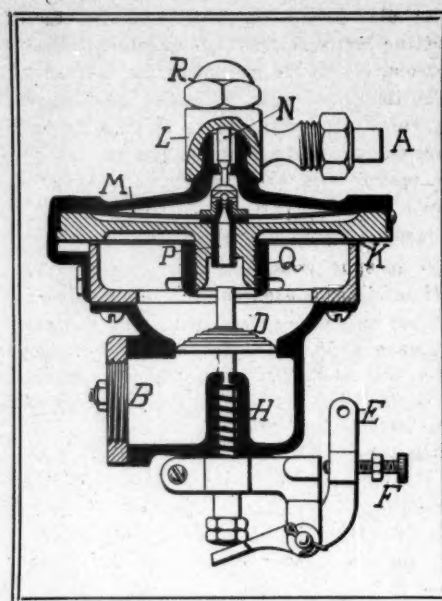
the entrance of air. Instead of the bottom of the throttle being open it has a fan-like plate with six V-shaped openings. Attached to the bottom is a disk wheel N made with corresponding openings, and this disk, by means of the screw P, is rigidly attached to the throttle. The size of the openings for the entering air can be changed by loosening the screw P and partly rotating the disk N until the openings are of the desired size. Q shows the removable covering for the mixing chamber.

ELDER'S COMBINATION TIRE

James M. Elder, Indianapolis, Ind., is the patentee of a pneumatic tire designed especially to resist puncture and yet retain the resiliency of the standard pneumatic tire. In accomplishing this a circular pneumatic tire A of standard construction rests on a bridge work E, which is carried directly on the rim of the wheel. Surrounding this tire on the two sides and covering about one-third of the tread are two steel bands C which are bolted to the rim on opposite sides. Between the outer ends of these bands is carried a solid rubber tire D which has its inner surface concaved to coincide with the curvature of the tread of the pneumatic tire A. This solid part D is nothing more or less than a solid tire and is used with the intention of preventing the puncturing of the pneumatic A and also giving longer gear. The tire D is free to slide radially between the plates C, so that with load it will sink towards the rim B and dent the top of the pneumatic tube A. The cross diameter of the pneumatic part does not increase much because of the rigidity of the bands C. The tire part D is held in place by a pair of side wires F, much as is any solid tire attached to a wheel rim.

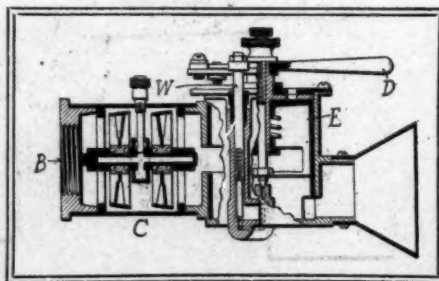
THE NEWCOMB CARBURETER

Attention is more and more turning to the floatless carbureter. A new style of this type is made by the Newcomb Carbureter Co., Broadway, New York city. Unlike many other floatless carbureters, the Newcomb uses a check valve for stopping the entrance of gasoline; this check valve being under the control of a large diaphragm; whereas most make's use a valve that seats because of its own weight, and one which is elevated from its seat by a disk or vane raised by the inrushing currents of air. In the Newcomb air enters through an annular opening K and mixture goes to the motor by way of the



THE NEWCOMB CARBURETER

passage B, the air taking a downward course through the apparatus. D is the throttle, which is controlled from the steering wheel or accelerator pedal of the car. It is raised or opened through connection with the curved arm E, one end of which rests beneath the bottom of the stem of the throttle D. The amount of lift given the throttle can be varied by the adjusting screw F. A spring H serves to close the throttle immediately the control lever on the steering wheel is relieved. The size of the air space K can be varied by releasing a locking spring and turning the entire top of the carbureter to the right or left, it having a threaded support on the lower part in the center piece Q. The top part has a universal union L with the gasoline pipe A, a universal union R being slightly loosened when any change in direction is made. Regarding the action of the carbureter: When the motor is cranked for starting a suction is set up in the carbureter proper, air entering, of course, through K. This suction communicates through the opening P with the space above the diaphragm M. This diaphragm is a specially-treated, pliable fabric not affected by the disintegrating influences of gasoline. The suction causes the diaphragm to rise in the center and as it rises it comes against the gasoline check valve N and raises it. With this valve raised the gasoline may flow from the pipe A into the space above the diaphragm M. As it gradually fills this space it flows down through the opening P. Falling into the mixing chamber it is mingled with the air, passes the throttle and thence to the motor cylinders. The gasoline will continue to flow downward through the pipe P until the pressure or weight of the gasoline above the diaphragm is greater than the suction beneath it, at which time the weight of gasoline forces the diaphragm well down, and as it lowers the



YOUNG'S ROTARY CARBURETER

valve also lowers on to its seat, thereby shutting off the flow of gasoline. Proportionately as the motor suction increases so is the diaphragm M pulled down and the valve N opens. There is thus a constant compensation between the suction of the motor and the weight of gasoline above the diaphragm.

COMBINATION BODIES

A limit in motor car body capacity as well as in luxuriousness of its appointment has not as yet been reached. The nearest approach in America to this limit comes from the factory of the Reading Metal Body Co., Fleetwood, Pa., which has just completed a ten-passenger body fitted on an 80-horsepower, Rochet-Schneider chassis. Aluminum forms the wall material throughout. This metal having a thickness of 1-16 inch, the maker claims a body 300 pounds lighter than that in which wood is the constructive material. Viewed from the side, front or rear, the body of the car is a mammoth touring machine with the rear part enclosed and a canopy top extending forward over the driver's seat. Four combinations are effected: As a limousine style of touring car it accommodates ten passengers, two sitting beside the driver and the rest in the cab part; with the entire top removed it becomes a large, open touring car; removing only the many large glass windows transforms it into a canopy topped vehicle and an extension leather top produces a perfect victoria effect. Complete it tips the scales at 4,200 pounds. Its dimensions are not less interesting than its capacity. The length measures 15 feet; rear wheels carry 6-inch pneumatic tires with 4-inch pneumatics on front; the rear compartment is 62 inches wide, 64 inches high and 96 inches long; and such appointments as card table, secretary, umbrella stand, toilet cases, sideboard, hat rack, ash trays, clock, mirror, electric lights, annunciator and speaking tube are installed. For the convenience of those requiring the services of a mechanic and yet not having seating accommodation for him, a folding seat on the left running board is furnished. Upholstering is in heavy full leather, and finish is in any standard colors.

MOTOR CAR LITERATURE



"A Busy Man's Text Book on Automobiles," from the Olds Motor Works, Lansing, Mich., is a most valuable cloth-covered, pocket-size volume containing forty-two pages of information on the Olds machines. The reading matter is not of the catalogue variety, but a continuous story on the motor car, explaining first the four-cycle motor with five illustrations, then explaining valves and timing, later explaining with illustrations valve grinding, following this up with how the cylinders are made and finished, how the pistons and rings are manufactured and how the crankshaft is built; further, such matters as connecting rods, bearings and crankcase are treated. Leaving the motor the carbureter is explained and then the wiring system is outlined. Passing on to the transmission, a complete set of line illustrations shows the principles of it. Four illustrations tell how as many different speeds are gained. After this, similarly treated, in a most comprehensive style, is the running gear, factory and testing plants. So far the information has been of a general nature and following are sixteen pages on Olds cars, giving specific details and illustrations of them. The book is an excellent study for the novice motorist.

The Supremus carbureter and the Arctic radiator, the two products manufactured by the Motor Components Mfg. Co., Des Moines, Ia., are explained in the initial catalogue of the concern. The radiator illustrations are particularly good in that the section illustration shows exactly how the radiator is made and how the cooling current flows. Good carbureter illustrations are given, some being lettered with a key list appended.

An illustrated price list of all parts entering into the manufacture of Packard 24, the present car of the Packard Motor Car Co., of Detroit, Mich., is being circulated. The many parts of the car go by numbers and on alternate pages are given lists of these parts, together with their

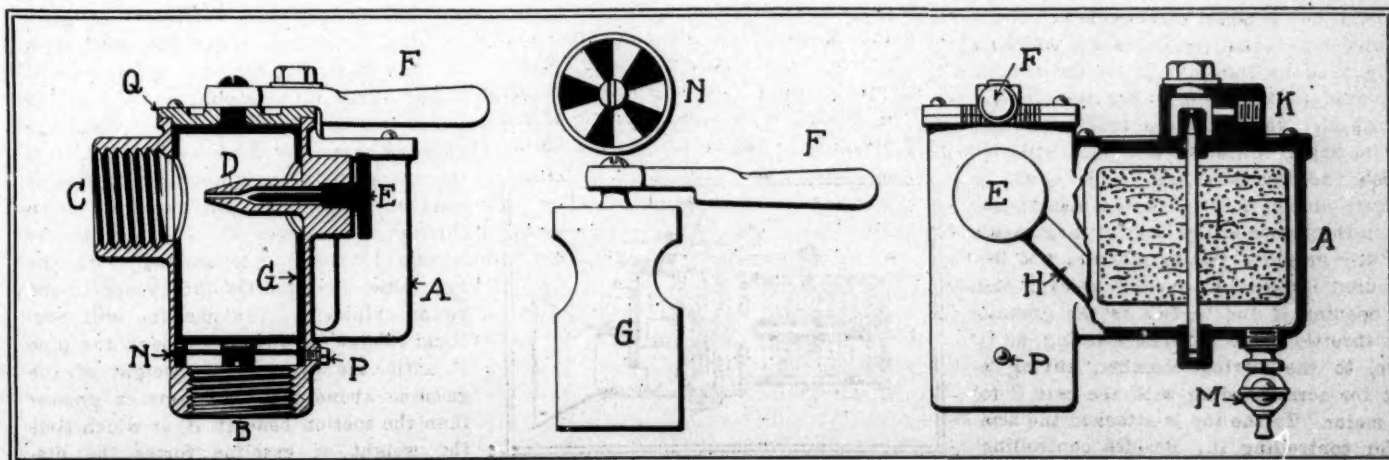
cost and code words to be used in ordering them. On alternate pages are illustrated every part, with the number marked on it. The book is equal in get-up with the best European products along this line, and in the hand of an owner will save endless worry, time and expense in ordering new parts. The book is of pocket size and contains thirty pages.

The White Sewing Machine Co., Cleveland, O., has published a book of commendatory letters from users of its machines. The cover is attractive. The front page is a triumphal arch bearing the inscription "What the People Say," and in the foreground, in front of the arch, is a loaded 1906 steamer. Instead of a running head of the several pages excerpts from the various letters are used.

"Amac" in silver on a gray ground and surrounded by a heavy silver border is the cover page of the present catalogue of the Aston Motor Accessories Co., Ltd., Birmingham, Eng. The book is devoted to various types of radiator tubing with cooling mediums attached, water pumps, spark plugs, wire terminals, commutators, lubricators and gasoline gauges. Detailed information and numerous illustrations of each part are given.

Charron, Girardot & Voigt's motor cars, sold in America by E. Voigt, 244 West Sixty-ninth street, New York city, are well shown up in a neat, green-covered catalogue. A feature is printing lists of owners who can be used for reference purposes. The illustrations include various styles of bodies, clutch, gearset and motors. Brief specifications of each model are published.

Of the many foreign catalogues now circulating in America that of the Societe Lorrain de Dietrich & Cie, Luneville, France, and with American offices controlled by the de Dietrich Importing Co., 3 West Forty-fourth street, New York city, stands in prominence because of its attractive green border effects on each page, its well-distributed illustrations and its profuse reading matter. Foreign catalogues are generally conspicuous by their absence of information, but this one is the exception.



DETAILS OF THE CUSHMAN CARBURETER, SHOWING THROTTLE REMOVED



BUFFALO AFTER CHIMES

It is now proposed by the Buffalo aldermen, or some of them, to stop the use of chimes on automobiles. Alderman Callinan, who is a physician, introduced a resolution at the last meeting of the board to prohibit the blowing of these pipes in the public streets. According to Dr. Callinan several physicians have complained to him that the screech from these pipes have worked havoc with the condition of some of their patients. Alderman Coppins was in favor of such a resolution. He claimed that he knew of a patient who, while suffering from a stroke of paralysis, fell from a chair when a screeching automobile tore by his house, and now the patient is at the point of death. Alderman Mullenhoff says that the ordinances provide that the automobiles should have horns. Alderman Coppins said that there was no objection to the use of the common horn, which is blown by pressing a rubber tube. The matter was referred to the committee on ordinances. The resolution is not taken very seriously in Buffalo.

FOLLOWS NEW YORK'S LEAD

Closely patterned after the successful New York law, State Highway Commissioner Joseph M. Snow, of Washington, has prepared a state aid highway bill which will be presented to the next legislature. In the past legislatures have appropriated large sums for state roads, and, while the money has been expended, there is not a road in the state of Washington being called a state highway. The state highway network at present. The legislature, however, switched a bit and, instead of providing the entire amount, decided that the counties should pay their proportion. The sum of \$110,000 was appropriated, but as yet only \$2,000 has been expended, which speaks for itself of county enterprise in the matter of good roads in the state.

The proposed bill, which deals with the procedure in detail, provides among other things that state-aided roads shall not be less than 8 feet wide nor more than 16 feet, unless special reasons demand greater width. The county is required to secure the right of way. One-half the cost shall be paid by the state from a state highway fund, which fund was created by the last legislature, the other half to be paid by the county. If the road is built without petition of the property owners the county's half is to be apportioned 35 per cent to the county general fund and 15 per cent to the special road district fund, but

if by petition this 15 per cent is to be paid by owners of the property immediately benefited. Road taxes on property abutting on state aided and improved roads must be paid in money, not work. Counties are required upon direction of the state commissioner to construct highways of not exceeding 1 mile in length if he deems it necessary to connect state-aided roads in this manner.

In addition to his other powers and duties the state highway commissioner shall compile statistics relative to the public highways throughout the state and shall collect all information in regard thereto deemed expedient. He shall investigate and determine upon various methods of road construction adapted to different sections of the state and as to the best methods of construction and maintenance of roads and bridges and such other information relating thereto as he shall deem appropriate. He may be consulted at all reasonable times by county officers having care and authorities over highways and bridges. He shall also hold in each year at least one public meeting in each county and shall cause due notice of such meeting to be given. He shall co-operate with all highway officials and shall assist county authorities and, when requested by them, furnish plans and directions for the improvement and public highways and bridges. Other sections require reports to the governor, provide for gathering data on highway work, etc.

BUMPS IN SEATTLE

Automobilists of Seattle, Wash., are very much incensed over the arbitrary action of County Commissioner Dan Abraham in ruining the best driving thoroughfare of the city, and for the evident purpose of restricting speed. The Spokane avenue bridge, which is really a plank road, has been treated to 4-inch planks, which prevents a speed faster than a walk. Mr. Abraham admits having had the planks nailed down for this purpose. It was evidently done during the fever a week or so ago, when there were several violations of the speed law. Several violators were hauled into court and the papers exploited the affairs. Abraham evidently got a little of the germ into his blood and proceeded to get funny with the bridge. His colleagues disclaim any participation in the act. It is probable the planks will be torn up again, as in case of accident the county would be liable for heavy damages.

Just to show how violent these motor-phobia outbursts become it has been given

out that a law is now being framed to be presented to the next legislature providing that the license number shall be painted on the body of the car and that the minimum fine for violating the law shall be \$100, with the maximum \$1,000. The author also proposes to hold a car liable for any fine which may be imposed.

PASSES IT ON TO JURY

The case of Wright vs. Crane, recently decided by the supreme court of Michigan, holds that whether it is negligence for the owner of an automobile to run it in the dark without the warning to one approaching from an opposite direction which a headlight gives is a question for the jury. Regarding the rights of automobiles in the highways the court says: "There is no doubt that the owners of automobiles have the same rights in the streets and highways of the state that the drivers of horses have, but the right of either class is not to use the means of locomotion without regard to the right of others having occasion to travel the highway. The degree of care required of either the driver of a horse or the chauffeur of an automobile is governed by the character of the agency employed. The automobile is usually, or at least often, driven with much greater speed than horses attain."

MORE WORRY FOR QUAKERS

Mayor Weaver, of the city of Philadelphia, has signed the anti-siren and the drip pan ordinances, which recently passed both branches of city councils. Adjournment intervened, however, before the city tag repealer could get through, and Quaker automobilists will be compelled to worry along this summer under the double-tag handicap. In this connection a recent decision of Judge E. C. Newcomb, of Scranton, practically declares the state law unconstitutional. Indeed, it is whispered that the failure of the city fathers to repeal the local statute was due to the doubt surrounding the status of the state law. It wouldn't do to allow the rampant Quaker automobilist to navigate the streets without some sort of legal restraint.

PECULIAR CASE IN GERMANY

From Germany comes the story of a peculiar accident near the Hoppegarten race track at Berlin, which was followed by a law suit. A thoroughbred, Morman I., belonging to Baron O. von Richthofen, was being ridden along the high road from its stables to the race course when an automobile, rushing around a bend in the road, upset both horse and rider. The racer, valued at \$5,000, was completely disabled by the accident and will not be able to race again, while the jockey riding it sustained serious injuries to his spine.

The occupants of the automobile, Herr Dädrieh, and his chauffeur, Weidemann, have been prosecuted under various counts for damages, for endangering human life, for reckless driving, for negli-

gence, etc. In order to test the case a repetition of the accident minus the horse and man will be performed before a judicial commission.

FAULT NOT THE DRIVER'S

In the case of Polasky vs. New York Transportation Co. the evidence showed the plaintiff was hit by an electric automobile owned by defendant when between the crosswalks in diagonally crossing the street, in the midst of moving vehicles, and in attempting to cross where the traffic was congested by reason of building material and an excavation in the street.

As Polasky came out from behind a pile of dirt, the automobile, coming along close to the obstruction, struck him. The driver testified he first saw Polasky as he ran out from behind the pile of dirt and

that as soon as he saw him he jammed his brake and stopped as soon as possible, running on the pile of dirt. Polasky charged that the automobile was being driven at a high rate of speed.

The court says that the testimony of the witnesses as to the speed at which the vehicle was going was entirely untrustworthy, and that no vehicle going at the rate of 15 miles an hour could be stopped within 2 or 3 feet by running upon a pile of dirt without throwing the man off and wrecking the machine. In disposing of the question of negligence the court says: "Considering this testimony as a whole, I think the accident occurred without fault of the driver, and that from the whole situation it is evident that the finding that the plaintiff was free from con-

tributory negligence was against the weight of evidence brought before this court for consideration."

PEORIA'S RESTRICTIONS

In Peoria, Ill., the motorist is forbidden to drive at a faster rate than 8 miles an hour while in the city limits. He must stop when signaled by a driver of any vehicle propelled by horse power. He also is required to have a bell or horn to toot or ring the same at fitting intervals and when occasion arises, and to be governed by the common rules of "road traffic." It is also provided that no two machines may be driven abreast on the city street, unless official permission is first secured. A fine of not exceeding \$100 may be levied for the infringement of any section of the ordinance.



HARVARD TAKES TO MOTORING



Cambridge, Mass., July 2—The automobile has not been overlooked by the Harvard undergraduate in his search for pleasant distractions. The fortunate student-owner of an automobile presents an entertaining sight, as he light-heartedly marches along with as many companions as he can conveniently stow away in his machine, to the Harvard square garage for a spin to one of the many beautiful towns situated within a radius of 50 miles of Cambridge. There are over forty-five student owners of automobiles here.

One of the students lately took a trip to Providence, which is about 45 miles distant from Cambridge. When he arrived at Providence his placidity of mind was somewhat ruffled by the considerate act of the garage owner who only charged him 60 cents an hour for the privilege of working on his own machine. Somewhat embittered by this experience he started in the dark for his home in Cambridge. After traveling a few miles, his machine suddenly struck an obstacle. He thought it was Vesuvius in a state of eruption, judging from the downpour of several of some fairly-sized blocks of matter, which upon examination turned out to be trunks and bales. A thoughtful expressman had taken his horses home at nightfall, but had left his loaded wagon with the tongue protruding across the road. This tongue, like many a human one, caused trouble. Descending from his perch in the automobile, the student removed the obstructive tongue, and carried it away down the road and hid it in the woods. He pictured the return of the expressman in the morning to his tongueless wagon and thought he could already hear the picturesque expressions that would scarcely be in harmony with songs of the early birds. But the student's benevolence reached further. He deposited one of the trunks upon the rail of

the trolley track, so that joy might be brought to the soul of the motorman who happened to be the early bird.

Congratulating himself that he had somewhat evened up matters, he started off again for his academic home. Soon an odor assailed his nasal organ—an odor that was suggestive of decayed vegetation. The odor grew in potency, and at last he was driven to the conviction that its source lay not in the disintegration of vegetable matter, but had its origin in his own machine. He again descended from his perch and discovered that the before-mentioned tongue, which he had hidden away in the woods, had while in contact with his machine, broken off the pet-cock, and that the confined waters had been released. He placed his hand four times on the cylinders, once on each cylinder, and, lo, four times was he singed. The expletives used on this occasion were more choleric than Homeric, but in his defense he cites the fact that a hot condition is effectually dispelled by a blast. Now, there was a well near a farmhouse a long distance away, and as this was a case in which he could not well let well alone, and the well could not come to him, he was perforce compelled to go to the well himself. He had to make three pilgrimages, and during these trips one can imagine him cultivating a spirit of resignation. In fact, he had no other kind of spirit at the time with him whose intimate acquaintance he could cultivate. Thankful and tankful, again he directed his course toward home. Soon he came upon a fellow student in distress, a chap whose rudimentary education in the art of manipulating an automo-

bile only commenced the day before, and who thought he knew it all; but his all was so little. He discovered him walking round and round his car with a lantern, supposedly hoping that under the searching rays of an oil lamp the lesion might manifest itself. Mud in the carbureter was the trouble in this instance.

In such a chapter of accidents, the drive would be incomplete without a punctured tire. The student got it, and it may be added he got it a-plenty. At this juncture there came on the scene a knight of the road, a Weary Willie, who, thinking he saw a chance of a lift to Cambridge instead of a long and dreary trudge, loudly declared his ability as an expert in the handling of punctured tires and generously proffered his services, which were more than cheerfully accepted. The student's joy at this seemingly propitious advent of the tramp was short-lived. The tramp worked to the best of his knowledge, but his knowledge was exceedingly limited.

Burning with a desire to restore the balance of things, the student invited the tramp to ride with him to Cambridge. Joy filled the heart of the tramp, but his joy quickly evaporated. As soon as they were well on the road, the student began his task of evening up matters with the tramp. He informed the hobo that he was known all over the state as a most reckless driver, scarcely passing a day without running over some unfortunate victim. From his recklessness he himself had often been at death's door. He had driven into stone walls, rushed into deep rivers, fallen over huge precipices; in a word, he knew well that it was only a matter of a short time before he would meet a terrible fate. To add force to his words he made the automobile perform such fear-inspiring stunts that he had the poor tramp worked up to a terrible state before home was reached.





FRANKLIN RUNABOUT IN KODAK SERVICE

Using Motor Vehicles in Syracuse

SYRACUSE, N. Y., was among the first to install motor cars in the police department, displacing the old horse patrol with a Columbia electric vehicle, June, 1905, and soon after adding an electric runabout for the use of the mayor and the heads of departments when engaged in going about the city on corporation work.

The accompanying illustration shows the police patrol leaving the municipal garage on a call. This garage was formerly the barn where the horses were kept and it was fitted up similar to fire engine houses, with the hanging harness and everything so that when the bell rang the patrol was ready in the twinkling of an eye. The place was remodeled, a cement floor was put in and a charging plant on the second floor. The electricity is secured from the Syracuse Lighting Co., and the cost of charging is about \$50 per month. So far the repairs have amounted to practically nothing. The city has employed W. H. Rex, formerly with the H. H. Franklin Co., to look after the machines and the two drivers. The latter are sworn in as members of the police department and wear the uniform of the regular policemen. The batteries were washed once last season.

The patrol has already made over 3,000 runs of anywhere from a 1/4 mile to 4 miles apiece. There has been no trouble in going over the steepest hills in the city.

The Syracuse representative of Motor Age succeeded in catching a snapshot of the Yates hotel bus on the way from the hotel to the New York Central railway station. This is one of two similar machines which are run by the hotel and by the Judd's Express Co. The exact agreement with the express company is a private matter, but it is known that the proprietors of the Yates bought the wagons, keep them in repair and charged while they are run by the express company upon a percentage basis, the hotel and the company each taking part of the 25 cents which is charged the passengers for the round trip transportation to the various local railway stations.

These machines have been running over a year now and a good idea can be formed of their desirability. For the year it has cost about \$250 apiece to keep the machines in repair. Owing to the peculiarly good facilities of the Yates hotel it has cost nothing to charge them, this being done from the plant of the hotel between times. An investigation into the service reveals the remarkable fact that neither machine is ever under cover. Both are left standing in front of the hotel in all kinds of weather and under all conditions, there being no stable in connection with the hotel. It might be supposed that this treatment would ruin a machine in about a year, but it does not seem to have hurt them or to have raised the repair bills much. The machines are kept running nearly all the time they are not being charged, and each makes over thirty trips per day, going about 20 miles. One of the buses was made by the Ryker company and the other by the Electric Vehicle Co., of Hartford, Conn., which is the manufacturer of the Columbia car.

From 100 to 200 passengers are carried a day, giving an income of from \$25 to \$50 a day. These machines are not used for baggage with the exception of the lighter grips and satchels. Formerly four horses were used to do the work now performed by the two machines. The investment has proven profitable to the hotel management in a direct manner, as well as for the advertising value. Some of the other hotels



SYRACUSE POLICE PATROL

in Syracuse are considering the question of installing automobiles and discarding the horse-drawn buses.

One of the most enthusiastic advocates of automobiles for commercial purposes is J. A. Seitz, an illustrative and press photographer and proprietor of the photographic supply store at 322 South Salina street. He uses his machine for making quick runs for newspapers, delivering photographs to merchants and manufacturers for catalogue work, doing carting from the railway station to his store and making the trips between his office and residence.

Mr. Seitz's first experience was with a light runabout costing \$650 and since then he has advised buying heavier machines for hard work. He wore out the runabout from May to September and sold what was left of it for \$350.

Mr. Seitz's first purchase of a Franklin car was in September, 1902. He bought the third Franklin machine ever sold, the first one having been sold to a Mr. Avery of New York and the second to Herman Casler of Canastota. Mr. Seitz paid \$1,200 for this car and ran it until February, 1905, giving it very hard usage. It was used 372 days continuously and in the winter when the trolley cars were not running the automobile was seen about the streets plowing through the snow. Mr. Seitz said he has never had a horse hitched to his machine or never had it towed in by another automobile. He added a top to the first machine he had which was a great comfort in winter, and to the machine which he now has he added a glass front.

In 1903 Mr. Seitz drove his machine 1,900 miles through Canada without breaking anything except the chain, which was an experimental one put on by the Franklin company. There were some minor ignition troubles on that trip, and the gasoline pipe leading from the tank to the carburetor broke. In all \$1.50 was spent for repairs on that trip. Mr. Seitz sold this machine in March, 1905, for \$800 and bought a 1904 Franklin which had been rebuilt especially for him at the factory. It is this machine which he is now using and which is illustrated. Last summer, in addition to doing all the hard work required of it, he went on another trip through Canada 1,400 miles long. He took five people from this city to Port Colborne, Ont., in a rain storm in 10 hours, consuming 3 gallons of gasoline and 1 1/2 gallons of oil. On this trip through Canada there were no tire troubles and not a puncture. Mr. Seitz now uses a clincher tire. He says tires are of much better construction than 2 years ago, as he carries twice the loads now and gets better results.

Since he bought his first Franklin Mr. Seitz has used 32 barrels of gasoline, and he makes from 10,000 to 12,000 miles every year. He lives 1 mile from his office and makes daily four to five trips there. When the machine is used for delivery purposes or for carrying around his cameras Mr.

Seitz removes the tonneau. At times boxes are piled up behind and in the seat and on the hood. His repairs average \$100 a year.

Mr. Seitz advises the use of pneumatic tires for delivery wagons. He says a good pump should be kept at the garage and the tires must be thoroughly inflated. He does not average over five punctures a year, and attributes this to the fact that he examines his tires frequently to remove any nails or sharp things that may be started in the tires. He claims punctures are not usually made by directly jabbing into anything, but the tire picks up various things which are allowed to remain there and finally worked through the tire, causing a puncture.

He has never had an accident of any kind. He says chains are not necessary on the tires, and he has driven his car in any place where a horse could go without any trouble. Mr. Seitz keeps his machine in his own garage and does all of his own caring for the vehicle. He attributes the rapid growth of his business to a great extent to the fact that he has an automobile, gives quick service, and shows that he is up to date.

USING TOURING COACH

The Automobile Transit Co., of Canton, O., has recently placed in service a very handsome touring coach of the type illustrated. The car is in a measure home made, being constructed from a No. 15 Rambler limousine chassis. The drive is of the side-chain type and the wheelbase is lengthened about 2 feet. The body is built so that windows and doors may be inserted in severe weather, making it perfectly tight. There are two side seats and a cross seat, with entrance from a step at the rear, the seating capacity of the machine being fourteen. The gearing has been reduced slightly, so as to allow for the heavier load, but the machine, rated at 35-40 horsepower, has handled a full load at 25 miles an hour with apparent ease.

Just at present the car is being used in pleasure trips about the city of Canton, which is noted as being the home of the late President McKinley. A charge of \$1 per mile is made, regardless of the number of passengers carried. Where the machine is hired for a long trip a stop-over of 1 hour is allowed without extra charge.

This scheme appears to be a fairly good one. The managements of the leading hotels co-operate with the company and arrange for parties, and where there are a number in one party the charge is not so high as hiring an individual machine. This summer when the magnificent monument being erected to the memory of President McKinley is completed it is the intention to make regular trips between the hotels and the monument and other places of interest, with a charge of 25 or 50 cents per passenger. During the winter months the car will be used on a regular schedule on North Market street, the main thorough-



YATES HOTEL BUS

fare of the city, which has no street car facilities. At the present time the company is operating two standard touring cars over this route on half-hourly schedule, and it is claimed they bring good returns at 10 cents per passenger. During the winter months this traffic is heavier, because in the pleasant weather many people walk to the city. It is believed that this service will be very remunerative for the larger machine during the colder months.

MOTOR MILE MARKS

Gets Rid of Horses—Mathew Morris, proprietor of the old stage line at Vine-land, N. J., has sold his horses, installing a complete motor bus service.

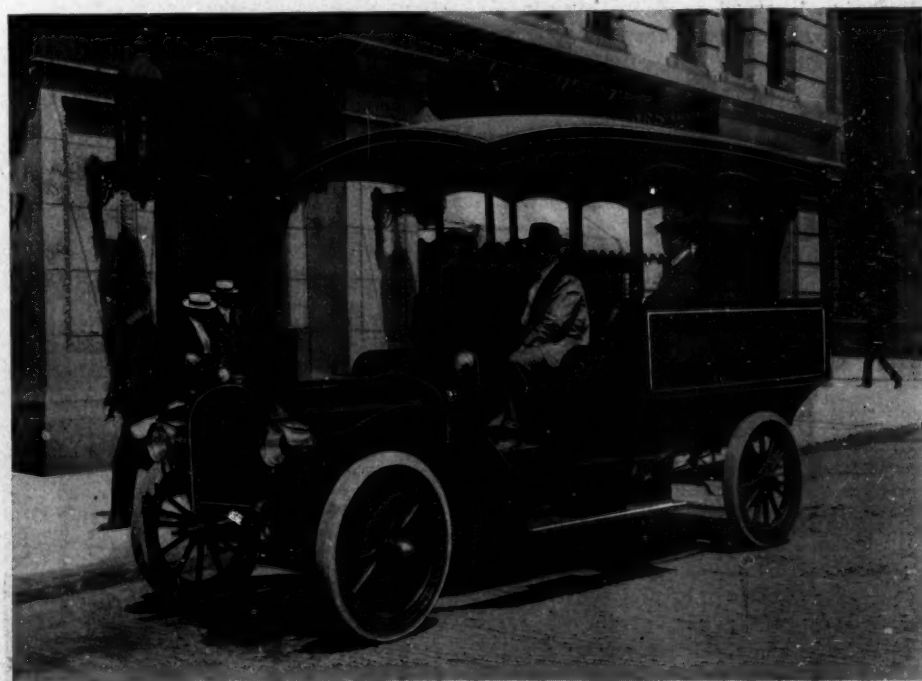
In Texas O. S. Johnson is about to start a motor bus line between Bryan, Tex., and Covege Station. Already a 16-horsepower machine with capacity for sixteen passengers has been received.

Frayer-Miller Cab—The Oscar Lear Automobile Co., of Columbus, maker of the Frayer-Miller, is building several hansom cabs of an improved style. The first made its appearance this week and created con-

siderable interest. The hansoms are of wide traction and low body and designed for the comfort of aged and invalids. Though built mainly as an experiment, they have already proved a success and will be included in the regular line of the firm.

Columbus Enterprise—A group of capitalists of Columbus, O., is considering the formation of a stock company to operate a line of automobile buses on two of the main residential thoroughfares of the city, which now have not street car facilities. It is planned to furnish a 10-minute schedule on the two streets—Broad and Bryden road—at a straight 5-cent fare. Twenty passenger cars will be procured, if the plans materialize, and a day and night service given. Both streets are well paved with asphalt and are about 5 miles long. They are feeders for a densely populated section built up with fine residences, and the scheme has every prospect of success. The projectors are also considering a sightseeing line operated so successfully in larger cities.

Has Park Privilege—J. P. Murray, of Cleveland, has been granted the privilege of operating motor buses through Wade park, Rockefeller park and the driveway through Gordon park to the lake front drive. Murray has ordered two electric vehicles capable of seating twenty passengers each. Under the terms of the agreement with the city he will carry passengers at the rate of 15 cents for the round trip or 10 cents one way. The proposition ought to be a good one, as there is no means of conveyance over the Cleveland park system, and thousands of people residents of the city have never seen portions of the park system because there were no means of conveyance. Efforts to establish horse-drawn buses have proven unsatisfactory.



RAMBLER CAR CONVERTED INTO FOURTEEN-PASSENGER BUS

Among the Makers & Dealers

Gale on the Row—The Gale car last week secured separate representation on Philadelphia automobile row, new offices and garage having been opened at 215 North Broad street.

White Man in Baltimore—H. M. Rowe, the Baltimore agent of the White, has opened the White garage at 1010 Morton street. L. W. Tremblay, formerly with the White Sewing Machine Co., Cleveland, is manager.

Car Renting in Paris—Rental of cars is very popular just now in Paris and good prices are being realized. The average for a good car by the day is \$35 plus the chauffeur's board. This figure, however, covers all other expenses.

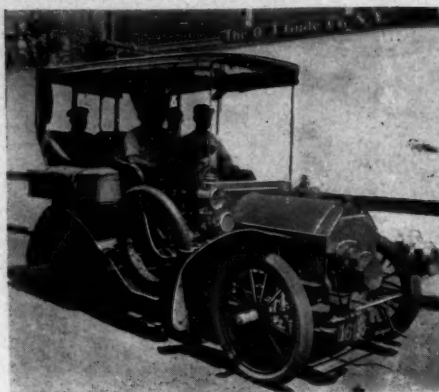
Sturdy Car Still—Sterling Morton, son of Joy Morton, of Chicago, a Princeton student, recently drove his brother and two college chums from Princeton, N. J., to Chicago in a 1904 Locomobile which has traveled 40,000 miles, it is claimed, since early in '04.

Big Business—The Auto Maintenance Co., of 1141 South Broad street, Philadelphia, has less than eighteen cars of various sizes and powers constantly on the go, and should the present unprecedented demand for machines continue the service will be extended.

Mitchell Changes—The Mitchell Motor Car Co.'s New York city agent, the Mitchell Motor Co. of New York, formerly using the firm name of Mitchell Commercial Vehicle Co., 121 West Thirty-first street, has recently moved into more commodious quarters at 1787 Broadway, corner Fifty-eighth street.

Spokane's Busy—Spokane probably will have a new \$50,000 garage before the summer is over. Charles White and C. D. Bibbins, two of Spokane's wealthy property owners and mine operators, are back of the new enterprise. They are now looking for a suitable site. At present every garage in the city is crowded to its full capacity, and automobile machinists have more repair work on hand than they can handle.

Reeves Gathering Statistics—Work has been started by the American Motor Car Manufacturers' Association to compile a complete list of automobile dealers and garages in America. By a rather novel system of investigation, it will be possible to soon have ready a list that will not alone tell the name of the concern, but the cars handled and other particulars that will be of value to those holding membership in the big organization of motor car builders. Believing business in other parts of the world is opening up for American makers, the firms in foreign countries will



LOCOMOBILE WITH A RECORD

be classified in the same way so that foreign agencies can be established.

G & J Branch Opens—The G & J Tire Co. has opened new branch headquarters in New York at 10 West Sixtieth street.

A. H. Prout a Frayer-Miller Man—A. H. Prout has secured the agency for the Frayer-Miller in Sandusky, O., and neighboring cities.

Kinsey Enlarging—The Kinsey Mfg. Co., of Dayton, O., has increased its force and capacity. It is now being rushed with orders for pressed steel frames.

Mitchell in New York—The Mitchell Motor Car Co. has leased and now occupies the former salesroom of C. A. Duerr & Co., at Broadway and Fifty-eighth street, New York.

Sells Fifteen '07 Pierces—An order for a six-cylinder Pierce, to be delivered next April, was taken by the Harrolds Motor Co., of New York, and is the fifteenth order for 1907 Pierce cars already booked by this agency.

Cincinnatians Organize—Retail dealers of Cincinnati recently met at the Grand hotel and organized an association, the object being to adopt uniform rates for repair. Sixteen dealers signed the agreement and elected officers as follows: President, Joseph Montford; vice-president, Charles Hanauer; secretary, Robert C. Crowthers; treasurer, Sid Black.

Has Alcohol Motor—The Wolverine Motor Co., of Grand Rapids, Mich., has perfected an alcohol marine motor which will be adapted for use in automobiles and is so constructed that either gasoline or alcohol can be used. Several tests with the new motor have been made and all have proven satisfactory. The Danish government has ordered eight of the motors for use in its naval launches, and the Austrian fish commission, in a report after trying out a number of motors, says the motor presents none of the difficulties of the older types.

O'Brien Changes—J. H. O'Brien, who has been connected with the Ford Motor Co. almost since its inception, is now with the Wayne Automobile Co.

Change in Toronto Show—R. M. Jaffray will promote his second annual show in Montreal the week of April 8, but will broaden out and include motor boats and marine engines. A sportsman's show also will be run.

Bennett to Quit Rambler—George W. Bennett, for years sales manager of Thomas B. Jeffery & Co., will on August 1 sever his connections with the Rambler people to accept a position with the Knox truck makers. His successor at Kenosha has not been named.

Reo Closes Mint Branch—The Reo company's Philadelphia branch in the Mint arcade, South Penn square, has been given up and temporary offices established in room 309 in the same building, with the permanent garage at 1627-1629 Brandywine street.

Gasoline Announcement—The Standard Oil Co. has notified its customers that high grade gasoline, testing 74 to 76 degrees, has been withdrawn from the market. This action is taken as a result of the demand for the product and the inability of the Standard company to supply it.

Gottlob Out—William Gottlob is no longer a partner in the Aluminum & White Metal Mfg. Co., of New York city, Rudolf Becker having taken over the assets and liabilities of the concern, which will continue under the same name. The office is now at the factory at Whitestone, L. I., where all communications should be addressed. The sample room at 336 Broadway, New York, will continue open.

Jack Branch in New York—Owing to the demand for Barrett jacks in the eastern market, the Duff Mfg. Co. of Allegheny, Pa., has opened a New York office in the Havemeyer building, at 26 Cortlandt street, in charge of George A. Edgin. The company also has leased a warehouse within easy reach of its office, where a complete line of Barrett track and car jacks will be kept in stock, as well as a quantity of Duff roller bearing screw jacks.

Used Shock Absorbers—Only one of the eleven cars that finished in the grand prix was not equipped with shock absorbers. More than one-half of those used were Truffault-Hartfords. The Hartford Suspension Co. has just been advised that the Peugeot car, which won the Rochet-Schneider cup for the second consecutive time, was equipped with the improved Truffault-Hartford shock absorbers. The Peugeot company has about closed nego-

tations with the Hartford company for the rights to manufacture and market these shock absorbers throughout all Europe on a royalty basis.

Taking on the Faif—Smith & Mabley, of New York, will represent in the United States and Canada the product of the Fabricei Automobil Isotta Fraschini, of Milan. The car is commonly called the Faif.

Need the Cars—The automobile section of the Milan exposition has been closed. Makers state that the cars, or most of them, have been sold and they cannot wait until the exposition closes in order to make delivery of the cars on show.

Medal for Jones—Joseph W. Jones, inventor of the speedometer bearing his name, has received a gold medal from the Automobile Club of Great Britain and Ireland, his device scoring the highest possible number of points without adjustment in a recent 2,000-mile test. Fourteen experts concluded the test.

Calls It Spite Fence—An 8-foot fence, which will be increased in height to 12 feet, is being built by Alfred W. Thorn, of 445 Delaware avenue, Buffalo, next to the plant of the Auto Car Equipment Co. in Edward street. Mr. Thorn says the plant is a nuisance. President Olmstead of the company says the fence, which will shut off the light of the car company's plant, it is said, is a "spite fence," and denies the Thorn assertion.

Fellwock Tonneau—A line of small tonneaus on surrey seats for runabouts has been brought out by the Fellwock Roll Panel Co., Evansville, Ind., one of which is shown attached to a model L Maxwell. In the rear is a drop door which gives access to the rear deck of the body, or, as in the case of the Maxwell speedster, the seat serves as a carrying space. These tonneaus are built, painted and upholstered. The necessary steps are furnished with each seat.

Fire in Nashville—A destructive fire visited the garage of the Southern Automobile Co. at Nashville, Tenn., recently. The damage amounted to \$7,000 and was covered by insurance. The fire originated by the careless handling of an acetylene lamp by one of the colored employees. In the explosion that followed, the man, Horace Rich, was severely burned about the arms. Several cars stored in the garage were partially damaged, though most of the machines injured belonged to the company.

Would Wind Up Concern—The West Indies Transportation Co., of Hartford, Conn., which was incorporated January 5, 1905, is to hold a meeting shortly for the purpose of terminating the existence of the company, which was formed with a capital stock of \$125,000 for the purpose of conducting transportation in Cuba and elsewhere by automobiles and to deal in automobiles and to transact other business incidental to the plans of organization. Some of those who were interested in the

concern are Thomas Malcolm, J. Condit Smith and Harry E. Coetcheus.

Northern in Line—Philadelphia's latest addition to the garage list is the Northern, which will open for business at Thirteenth and Westmoreland streets.

Open and Busy—The new garage of the McDuffee Automobile Co., on Grand boulevard near Forty-first street, Chicago, is in full swing. The place is in a splendid residence district and is well patronized.

Opened New Shop—John Thiel, for many years connected with the Ralph Temple Automobile Co., of Chicago, in the capacity of shop foreman, has opened a repair shop on Eldridge court, between Michigan and Wabash avenues, Chicago, and is doing a general repair and rebuilding business.

Added Garage—The Garfield Automobile Co., located on Garfield boulevard, Chicago, which has been doing a manufacturing business in a small way, has erected an addition to its factory for garage purposes. Already all available room is occupied and another addition is contemplated.

Novel Scheme—R. Newton, of the Atlantic Motor Car Co., of New York, has suggested a novel plan for the utilization of one of the vacant garages on upper Broadway. He suggests a number of the dealers band together, lease one of the buildings, partition off the ground floor into salesrooms, and maintain a co-operative garage in the rest of the building, somewhat after the plan of a motor mart. The Atlantic Motor Car Co. is the agent for the Autocar.

Corlew Is Dragon Chief—F. S. Corlew has resigned his position as sales manager of the Oldsmobile Co. of Boston, and has organized the Dragon Automobile Co., whose factory is to be in Detroit. His intention is to put on the market for 1907 a four-cylinder gentleman's roadster, shaft drive, sliding transmission, wheel steer, 20-24-horsepower, and light touring car, on the same chassis. The company expects to have its demonstrating cars on the road about August 15. Mr. Corlew will have

entire charge of the sales department, with offices in Detroit and Boston, and will divide his time between these places.

Joins Pope Forces—Victor Villard, formerly with the Sidney B. Bowman Automobile Co., has joined the Pope selling force at the New York branch.

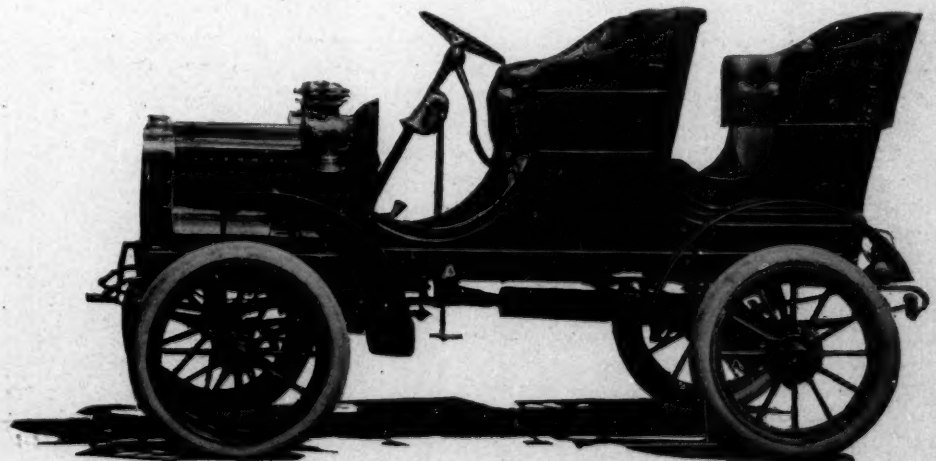
Speirs a Wayne Man—John C. Speirs, late of the Autocar Co., has become the general factory representative of the Wayne Automobile Co., of Detroit.

Adds the Babcock—The Diamond Motor Car Co., of Philadelphia, which recently opened new downtown quarters at 236 North Broad street, has been awarded the local agency for the Babcock electric car, made at Buffalo.

Pickerill Owns It All—W. W. Pickerill is now the sole owner of the Washington Automobile Co., of Tacoma, Wash., having purchased the interests owned by Lewis E. Younie and Arthur W. Hoffman. This is the pioneer automobile business of Tacoma, having been started 2 years ago by Mr. Pickerill and Harry Hurley, and having had remarkable growth.

White Victory—Cable dispatches tell of a victory by an 18-horsepower White steamer in the recent hill climb of the Midland Automobile Club, Birmingham, England. The White steamer made the ascent 6 seconds faster than any of its thirty-four competitors, which included five 35-horsepower Daimlers, a 60-horsepower Napier, a 60-horsepower de Dietrich, a 50-horsepower Napier, a 40-horsepower de Dietrich, a 40-horsepower Beloit, a 40-horsepower Daimler and two 32-horsepower Darracqs.

Reorganizes—The Auto Traffic Co., Pittsburgh, which has had more or less of a stormy financial existence the last 2 years, has been reorganized again and is doing a fine business in sightseeing in the parks and suburbs. Its cars carry twenty persons easily and start from Smithfield street and Fifth avenue every few hours. The company is getting a good deal more traffic from visitors to the city this summer than ever before, and its receipts are said to be sufficient to warrant a very successful season at the present rate.



FELLWOCK TONNEAU AS FITTED TO A MAXWELL CAR

From The Four Winds



WINTONS LINED UP IN FRONT OF WASHINGTON MONUMENT, WASHINGTON, D. C.

Capt. Kelley Dead—T. W. Kelley, for years captain of the South Park police of Chicago, is dead, having been stricken with an apoplectic fit while automobile riding. Captain Kelley was a motorist himself and owned a small runabout.

Ardennes Entry Slim One—Entries for the Ardennes race are not so numerous as those of last year, but a very satisfactory lot of machines is presented. It is a race without neutralizations and of some 375 miles in extent. The entry list closed June 25.

Believes in Signs—The Chicago Automobile Club has started its signboard campaign, its first effort being to placard the route between Chicago and Joliet. It took thirty-seven signs to do the work. The club soon will extend its missionary labors to other routes. The Chicago Automobile Dealers' Association has determined to mark the Elgin-Aurora century course in preparation for its reliability test July 26.

Taxes in Quebec—Taxes imposed by the province of Quebec on commercial travelers and companies is giving rise to a good deal of trouble. The tax on travelers is semi-annual and varies in amount, according to the character, wholesale or retail, of the houses visited. A traveler may have to pay \$200, according to the conditions of his sales. For instance, if a traveler selling automobiles sells direct to a customer he must take out a \$200 license; if he sells to a dealer for retail to the customer the charge is \$100, and if to large concerns which resell to dealers and not to customers direct the license is \$50. If the business is done through a commercial traveler the latter's tax is payable. If the agent has a fixed place of business then the firm he represents becomes liable to the percentage tax. This is a tax levied upon companies doing business in Quebec. This tax amounts to $\frac{1}{4}$ of 1 per cent upon the amount of paid-in capital to \$1,000,000 and \$50 for each \$100,000 or fraction thereof above \$1,000,000. An additional

tax of \$50 is leviable for each place of business, factory or workshop in the cities of Montreal and Quebec and of \$50 for each place of business, factory, etc., in every other place.

Escaped in Motor Car—Thomas M. Wilder, illustrator for Motor Age, and Miss Edna Higman were married last Saturday at the home of the bride on Monroe avenue, Chicago. The ceremony was performed in the afternoon under a canopy spread over the entire lawn. The bride and groom started on their honeymoon in an automobile with one of the groom's co-workers at the wheel. After a short visit in the Wisconsin lake region, Mr. and Mrs. Wilder will reside at Ravinia, a Chicago north shore suburb.

Herkomer Winner—Dr. Rudolf Stoess, the winner of the Herkomer tour, formerly was a fervent cyclist and won many prizes in tandem riding. He has been a member of the Bavarian Automobile Club 4 years and had been over the circuit twice before the present tour. Recognizing the advantage which a small car would have over the hilly route, he discarded the 60-horsepower Mercedes which he often uses. He was quite satisfied with the behavior of the Horch, which climbed the steepest parts of the Zirler with ease. The light-



DE STOESS, HERKOMER WINNER

ness of the car obviated trouble with tires experienced by many a heavier rival. He admits that the larger cars were handicapped by the rules and he recognized this by running a small-powered car.

Jerseyites Find a Home—President John H. Wood, of the New Jersey Automobile Club, has signed the lease for the clubhouse of the organization in the old Osbourne mansion at Broad and Chestnut streets at Newark, N. J.

Will "Get His"—John Megrew, the Philadelphia real estate dealer who, to win a bet, did the 59 miles from Philadelphia to Atlantic City in an hour and a half—and then bragged about it in the papers—now wishes he hadn't. The new commissioner of motor vehicles of New Jersey has informed Mr. Megrew that unless he can disprove the newspaper stories no license will be issued him by the state. The commissioner also wants to know how it was that he used a 60-horsepower machine in his road-burning stunt, whereas the only car for which he holds a New Jersey license is a 20-horsepower machine.

On Its Last Legs—A show-cause order has been issued by Justice Pound of Buffalo directing all interested persons to show cause why the Automobile Racing Association of that city should not be dissolved. This is a voluntary dissolution on the petition of August H. Knoll, Jesse B. Eccleston, John A. Cramer and John J. Gibson. They constitute a majority of the directors. They ask that the association be dissolved on the ground that it was engaged in a hazardous enterprise. The association was organized July 24, 1904, and conducted two race meets in Buffalo. It was during the last meet that Webb Jay met with a serious accident. There has been a growing sentiment in Buffalo against such meets on account of the extreme element of danger attached to the alleged sport.

A. M. C. M. A.'s Road Bureau—Believing that improved highways are necessary for the continued prosperity of automobilizing, the American Motor Car Manufacturers' Association will provide for a department having road matters in charge. Information received at the headquarters this week from Logan Waller Page, director of the United States Department of Agriculture, gives some interesting figures of the amount of new roads which have been recently built, together with the total number of miles. The major portion of the states has less than 10 per cent of the roads improved. Tennessee has 48,989 miles of public road, or 1 mile for every 41 inhabitants, of which only about 9 per cent has been improved. Virginia has 51,812 miles, of which 1,600 miles is improved, giving but 1 mile of improved roads to every 1,158 inhabitants. North Carolina has 49,763 miles; Oregon, 34,258 miles; Iowa, 102,488 miles; Arkansas, 36,445 miles; Arizona, 5,987 miles; Alabama, 50,089 miles; Washington, 31,998 miles; New Hampshire, 15,166 miles. In most of

these states there is 1 mile of ordinary road for every twenty-five to thirty-five inhabitants, but of improved roads, only 1 mile for anywhere from 471 to 1,255 inhabitants.

Car on the Force—Recently when the horses of the Tarrytown, N. Y., fire department were not able to take a hook and ladder truck up a steep hill a telephone message was sent to the Maxwell-Briscoe Motor Co., which furnished a runabout. The little car proved valuable in assisting the horses, and subsequently the car was placed at the disposal of the fire department, officers of the company joining the organization. The automobile is subject to call now on all alarms of fire sent in.

Close Call—To the fact that he carried a spare axle does Charles E. Knox, a prospector, of Independence, a suburb of Kansas City, attribute his escape from perishing in the Death valley. At a point 150 feet below sea level, with the temperature at 130 degrees and the stones so hot that members of the party burned themselves in gathering up stones to jack up the car, an axle broke. Fortunately the spare axle was fitted without accident and the party proceeded to safety.

Queer Accident—One of the big touring cars of the Hunt Mfg. Co. met with a peculiar accident near Connell, Wash., a few days ago. The machine was being driven over strawed roads when it began to roll up straw until it threatened to clog the machinery. While the driver was endeavoring to remove the straw it took fire and the machine and straw road both were badly burned. The damage is estimated at \$3,000. In some localities in this part of the country the farmers cover the road with straw, which makes a good road-bed for the horse-drawn vehicle and for the automobile.

Hub's Latest Effort—Entry blanks for the combined New York and Boston tour, which is to be under the direction of the Bay State Automobile Association, are out and can be obtained from E. A. Gilmore, chairman of the runs and tours committee of the Bay State Automobile Association, 145 Columbus avenue, Boston, Mass., or from W. J. Morgan, Bretton Hall, Eighty-fifth street and Broadway, New York. The blank is a combination one so that entries can be made for the tour and for the third annual White Mountain hill climb at the same time. The climb this year will be through the picturesque Crawford Notch, a few miles from Bretton Woods. The start will be at the historic Willey house. Twelve events for machines listing from \$850 and under to \$8,000 and over are to be contested, as well as a free-for-all and a light and heavy weight class according to the rules of the American Automobile Association. Entries for the Bay State second annual tour are coming in rapidly, and it is now certain that a goodly number of cars will start from New York



THE LATE CAPTAIN KELLY

July 24, and the tour proper, when it leaves Boston the morning of July 26, probably will see the largest turnout of automobiles headed for the White Mountains that has ever left the classical city.

Buffalo Too—One thousand orphans will be entertained by the Automobile Club of Buffalo on July 10. The youngsters will be taken in an automobile trip about the city, after which they will go to Athletic park, where they will be the guests of the club. Last year the club had 148 cars at its disposal to carry 845 children to various points of interest about Buffalo on orphans' day.

Shears Sheep by Motor Power—One of the most novel uses to which an automobile has yet been put has been tried in Portland, Mich., and found successful. It only demonstrates, however, the infinite uses to which a machine can be put toward aiding a farmer. This use is the aiding in shearing sheep. Shearing sheep with power shears has become quite a fad in Michigan, but ex-Sheriff Mattison went his neighbors one better when he impressed his automobile into service. By

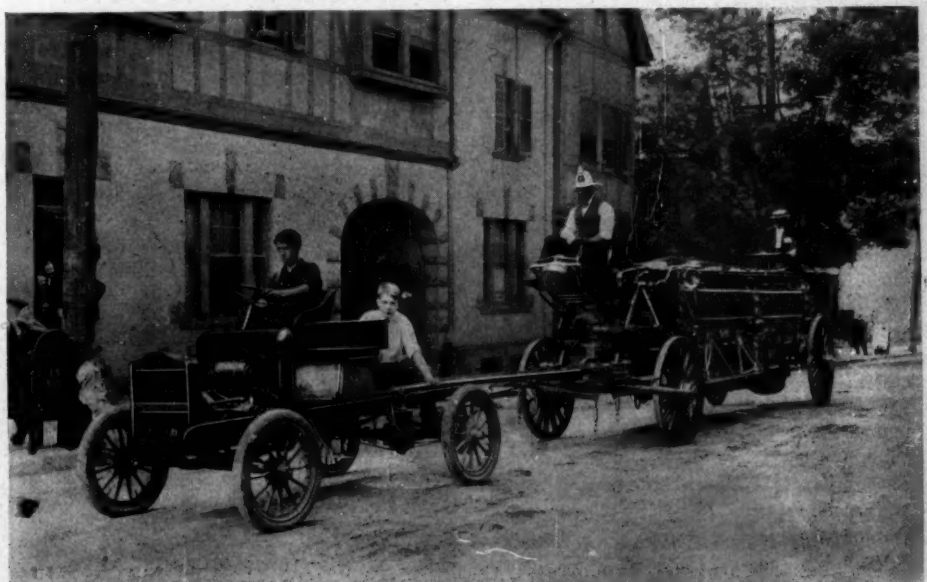
means of a belt the engine of the car was made to transmit power to the large wheel which operates the power shears, and it works to a charm at this sort of work.

Swell Road—One of the best automobile roads on the Pacific coast is the run out from Spokane on the Sprague avenue road to Coeur d'Alene, Hayden lake and other delightful resorts east of the city, some of them over the line in Idaho. The grades are trifling, the road is broad and on a gravel bed almost as smooth as a macadamized road. It has but little dust in dry weather and is not muddy after a rain.

Lets Club In—The Chicago Automobile Trade Association has decided to accept the offer of the Chicago Automobile Club to cooperate in the promotion of the reliability test over the Elgin-Aurora century course July 26. It is the intention of Chairman Gunther to model the rules of the contest as closely as possible to the laws governing the Glidden. There will be three controls and a leeway of 5 minutes allowed at each control in the 100 miles.

Tough Tour—The Matin's touring competition for a cup will take place on August 2, a 3 weeks' run of 3,700 miles around France in stages of somewhat less than 200 miles per day, with 12 hours' rest between the stages. The closed park principle is again to be used. The cars will be awarded prizes based on wheels, consumption of gasoline and endurance.

More Good Roads—Buffalo motorists are delighted because during the present year it is estimated that 40 additional miles of good roads will be built in Erie county out of the \$50,000,000 appropriated by the state. Thus far this county has had constructed 53.16 miles. The state engineer's force is hard at work on a system of about 300 miles additional to be built during the next 10 years.



HOW A MAXWELL HELPED OUT A FIRE DEPARTMENT

Current Automobile Patents

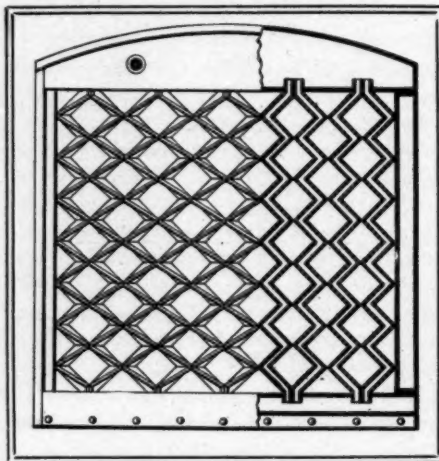
Diamond Radiator Design—No. 824,493, dated June 26; to D. McRa Livingston, New York city.—Water tubes extend from an upper water tank, in the top of the radiator, to a connecting passage in the bottom. These tubes, formed from corrugated plates, follow a zigzag course, each pair of tubes having a diamond arrangement, and the entire radiator, when viewed from the front, having the appearance of rows of interwoven diamond air spaces. Each water tube is formed by two metal plates connected with each other at the side edges. Each two adjacent water tubes have a single entrance to the top and bottom water spaces.

Pneumatic Tire—No. 824,604, dated June 26; to C. R. Twitchell, Los Angeles, Cal.—In this tire the inner air tube is a separate member as in most pneumatic tires, but the outer covering consists of textile wrappings wound in helical form, each winding being opposite to that on either side of it. These windings are in no wise connected to each other. Outside of them is a suitable covering forming the outer portion of the casing.

Novel Tire Attachment—No. 824,241, dated June 26; to W. E. Greer, Akron, O.—In this tire of the double-tube, pneumatic type the outer casing is secured to the rim of the wheel through the use of removable side flanges and a V piece, or ring, lying between the sides of the casing and resting on the center of the rim, the tire edges not carrying the customary lips essential in clincher types. Lugs for preventing the outer casing creeping on the

rim are eliminated through the introduction of cross keyways in the surface of the rim, the tire casing being furnished with lug-pieces for slipping into these keyways when the tire is being placed in position.

Railroad Tire Cover—No. 824,240, dated June 26; to C. H. Goodman, Bucyrus, O.—The tire cover referred to in this patent is designed to be attached to the regular type of pneumatic tire so that the car can be run upon the rails of a steam railroad track. This cover attachment is composed



LIVINGSTON'S RADIATOR

of two portions, one a curved ring adapted to the side curvature of the pneumatic tire and carrying a tread and flanged part for running on the rail and the other a curved portion adapted to the opposite side of the tire and intended to hold the former portion in position on the tire. Suitable clamping parts are needed in binding the cover part rigidly to the rim of the wheel.

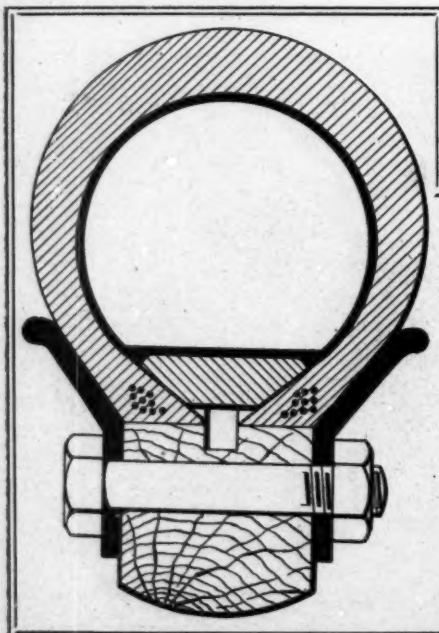
Motor Car Frame—No. 824,550, dated June 26; to L. Lazerges, Issy-les-Moulineaux, France—Three parts enter into this

combination frame for motor cars. Of these, two are U-shaped pressed steel pieces, both of same shape but one smaller than the other so it can rest entirely within the larger and is attached thereto by riveting. The space between these U-shaped steel pieces is filled with wood.

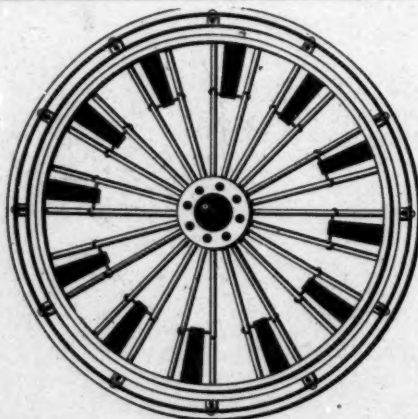
Hub Brake Construction—No. 824,151, dated June 26; to C. Schmidt, Detroit, Mich.—This brake construction intended for the hubs of the back wheels on motor cars with live rear axles embraces a double braking surface on the wheel hubs, one surface serving for an expanding brake and that without it for a contracting brake band. On the stationary axle casing are formed integral lugs for taking the weight of the expanding members as well as the contracting parts.

Semi-Pneumatic Tire—No. 824,476, dated June 26; to T. Furlong, St. Louis, Mo.—In fastening this tire to the wheel rim side flanges similar to those used for securing Fisk tires are called into surface. The air chamber in the tire is, however, comparatively small, and above it, forming the tread of the tire, is a heavy rubber tread made flat and carrying small circular grooves. The base of the tire is extra thick and rests almost entirely between the retaining flanges. The air space is small and instead of being circular is slightly crescent shaped with the top of the base part convexed and the inner wall of the tread part concaved, permitting it in case of puncture lying snugly on the top of the tread part with the sides bulged out. The aim of the inventor is to obtain a tire, of the single-tube type, that can be used even if punctured.

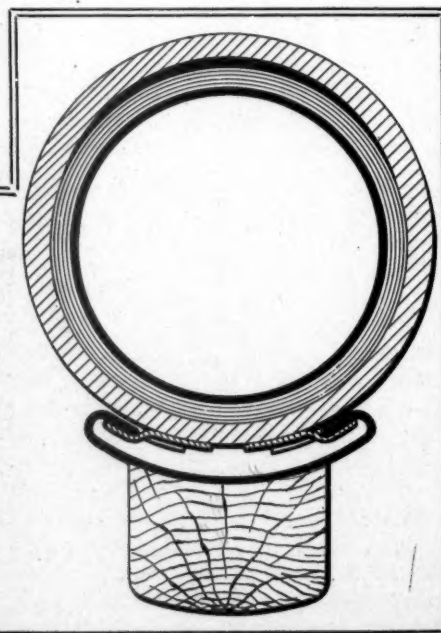
Storage Battery—No. 824,348, dated June 26; to G. A. Ford, Cleveland, O.—One of the plate members in this battery is a central tapering web piece with vanes on one side of it and to increase the surface of battery metal an auxiliary plate member with intervening fins is used.



GREER'S TIRE ATTACHMENT



GOODMAN'S TIRE COVER



TWITCHELL'S TIRE

BRIEF BUSINESS ANNOUNCEMENTS

Morris, Ill.—The Morris Motor Car Co., Dudley McKeen, manager, has opened a garage on Liberty street.

East Hampton, Conn.—F. W. Hill is now with the Corbin Motor Vehicle Co., of New Britain, as head electrician and assistant engineer.

Newark, N. J.—The Elmore Automobile Co. has opened a branch here at 237 Halsey street, under the management of A. H. Huntington.

Cleveland—The plant of the Wade Park Automobile Repair Co. was completely destroyed by fire. The loss is said to be about \$10,000.

San Francisco—C. W. Hopkins has erected a large building at 729 Gough street, and will open a motor cycle and tri-car establishment.

Erie, Pa.—It is said M. Liebel, Jr., still expects to land the automobile plant, which recently went into the hands of a receiver, at Jamestown, N. Y.

Baltimore, Md.—John A. Miller has assigned to J. M. Thurston, of Washington, as trustee, the patent for a safety system for motor propelled cars.

Indianapolis, Ind.—Frank A. Beck has taken the local agency for the Pope-Toledo. He will open headquarters at 719-721 North Illinois street.

Wilkesbarre, Pa.—At a recent meeting of the Matheson Motor Car Co. and the Matheson Co. of New York, it was decided to enlarge the factory here.

Lafayette, Ind.—Notice has been given that W. R. Brown has bought the controlling interest in the Tippecanoe Automobile Co., and will control all business.

Newport, R. I.—C. B. Rice, the eastern agent for the Baker electric, has established a branch at Newport. This will not be confined to the summer season, but will be a permanent institution.

Pittsburg—The Wilkinsburg Automobile Co. has completed arrangements with W. W. Gerthrop, general sales agent for the Elmore company, of Clyde, O., for the local agency for that company.

Pittsburg, Pa.—An application has been made for a charter for a company to be known as the Pittsburg Auto Express Co., which proposes to run an automobile express business in Pittsburg and Allegheny.

Syracuse, N. Y.—Patterson, Gottfried & Hunter, of 146-150 Center street, have made a contract with the Porter-Cable Machine Co., manufacturer of automobile jacks, for the exclusive agency in New York city.

Peabody, Mass.—The Corwin Mfg. Co. has acquired the exclusive rights for the manufacture of the kerosene engines manufactured by the International Power Vehicle Co., of Stamford, Conn. All the machinery now at the Stamford works will

be removed to the Corwin factory, new machinery will likewise be installed, and the business will be enlarged.

Wilmington, Del.—The Delaware Auto Storage and Repair Co. has recently doubled the capacity of its garage.

Boston—Charles Rauch, of Cleveland, O., has placed the agency for the Rauch & Lang electric vehicle with C. A. Fultz, of 801 Boylston street.

Toledo, O.—Leonard Johnson, who, for 4 years has been auditor of the Toledo Stone & Sand Co., has accepted a position with the Hamilton Co. of Chicago.

Paterson, N. J.—The Watson Machine Co. will put its first car on the market next year. It is to be a 35-40-horsepower, and will be known as the Watson-Conover. The minimum output for the first year is estimated at 100 cars.

Newark, N. J.—A new automobile stage line will shortly be put in operation in East Orange, making trips from the Brick Church station of the Lackawanna railroad to the Doddtown section. A license has been granted to the New Jersey Auto Transit Co., which will run the line.

Pittsburg—The Standard Automobile Co. has built an addition 20 by 65 feet and will also erect a new building 50 by 100 feet to care for its rapidly increasing business. A power elevator will be installed to handle cars of any size and weight and the new section will be de-

voted to a Packard repair shop, top department, paint shop and storage room for machines.

Lafayette, Ind.—W. E. Brown has bought the controlling interest in the Tippecanoe Automobile Co.

New York—The Standard Brake Co. has opened headquarters at Broadway and Sixty-sixth street. The officers of the concern are: President, Clarence McKenzie; vice-president, Maurice Carmack; secretary and treasurer, Fred C. Carmack.

Allegan, Mich.—The Hensel Battery & Mfg. Co., of Chicago, has established a factory here and will manufacture the Hensel storage battery and accessories and the Hensel air motor. The Chicago office and works will be continued at 11 Eldredge court.

Pittsburg—The Logan Automobile Co., agent for the Logan car, is now ready for business in its new garage at Mignonette and Randolph streets. The company handles all kinds of automobiles, from the runabout to the 2-ton truck.

Pittsburg—The Auto Tire Repair Co., of 5810 Mignonette street, has just completed arrangements for the installation of a machine to be used for putting on solid and cushion tires. Charles W. Vey is the manager of the concern.

Brooklyn—The Manhattan Auto Top Co., of 249 West Sixty-fourth street, has opened a branch at 186 Atlantic avenue. The new branch will be known as the Brooklyn Auto Top and Supply Co., and will be under the management of L. C. Willis.

Chicago—Richard Bacon, for some months in the sales department of George A. Crane & Co., Chicago, agents for the Knox waterless, has resigned to accept a position with the McDuffie Automobile Co., agent for the Royal Tourist and Stoddard-Dayton.

New York—The eastern district of the National Metal Trades Association, composed of firms in the metal shops trades, is endeavoring to enroll the automobile manufacturers in their association. Henry G. Hunter is the eastern district representative.

Albany, N. Y.—The contest branch of Maxwell-Briscoe Co. has been incorporated with a capital stock of \$6,000, to sell and operate motor boats, motor vehicles, air ships, etc. Incorporators, Frank N. Lawrence, of Brooklyn; Nicholas Betjeman, of New York city, and William H. Webster, Pelham, N. J.

El Paso, Tex.—Ground has been broken for a one-story brick store building on North Stanton street, near Myrtle. The property belongs to M. C. McGlennon, who is erecting the building. It has been rented to the Johnson Auto Co., whose garage on Texas street was burned some time ago.

RECENT INCORPORATIONS

Worcester, Mass.—Dudley Automobile School Co., capital stock \$3,000; incorporators, S. L. Lamson, F. L. Lamson and L. M. Mabley.

New York—Auto-Wheel Co., to manufacture automobile wheels; incorporators, Walter S. Newhouse, Arnold C. Well and George A. Viehmann.

Albany, N. Y.—Auto Wheel Co., capital stock \$10,000; to manufacture automobile wheels; incorporators, W. S. Newhouse, A. C. Well and George A. Viehmann.

Boston—Concord Motor Car Co., capital stock \$10,000; to manufacture, lease and operate automobiles and motor cars; incorporators, H. C. Garland, J. S. P. Alcott, F. A. Pratt and J. E. Lavell.

Lansing, Mich.—B. & O. Auto Line, capital stock \$5,000; to buy, sell, repair, build and operate automobiles; incorporators, L. E. Bussey, W. H. Olmstead, W. S. Anderson and F. G. Withrow.

Rochester, N. Y.—Long & Mann Co., capital stock, \$15,000; to manufacture appliances for adjustment of tires on automobiles, etc.; incorporators, Abram S. Mann, Carrie A. Long and Adam A. Long.

New York—Knickerbocker Automobile Station Co., capital stock, \$25,000; to store and repair vehicles; incorporators, H. L. Constable, C. F. W. Reiss and Louis A. Fehr.

New York—Mount Morris Garage Co., capital stock, \$5,000; to manufacture, maintain and repair motor vehicles; incorporators, A. G. Ibbekem, F. W. Cuttrell and E. L. Barney.

American Motor League

OFFICIAL BULLETIN

National Headquarters, Vanderbilt Building
New York

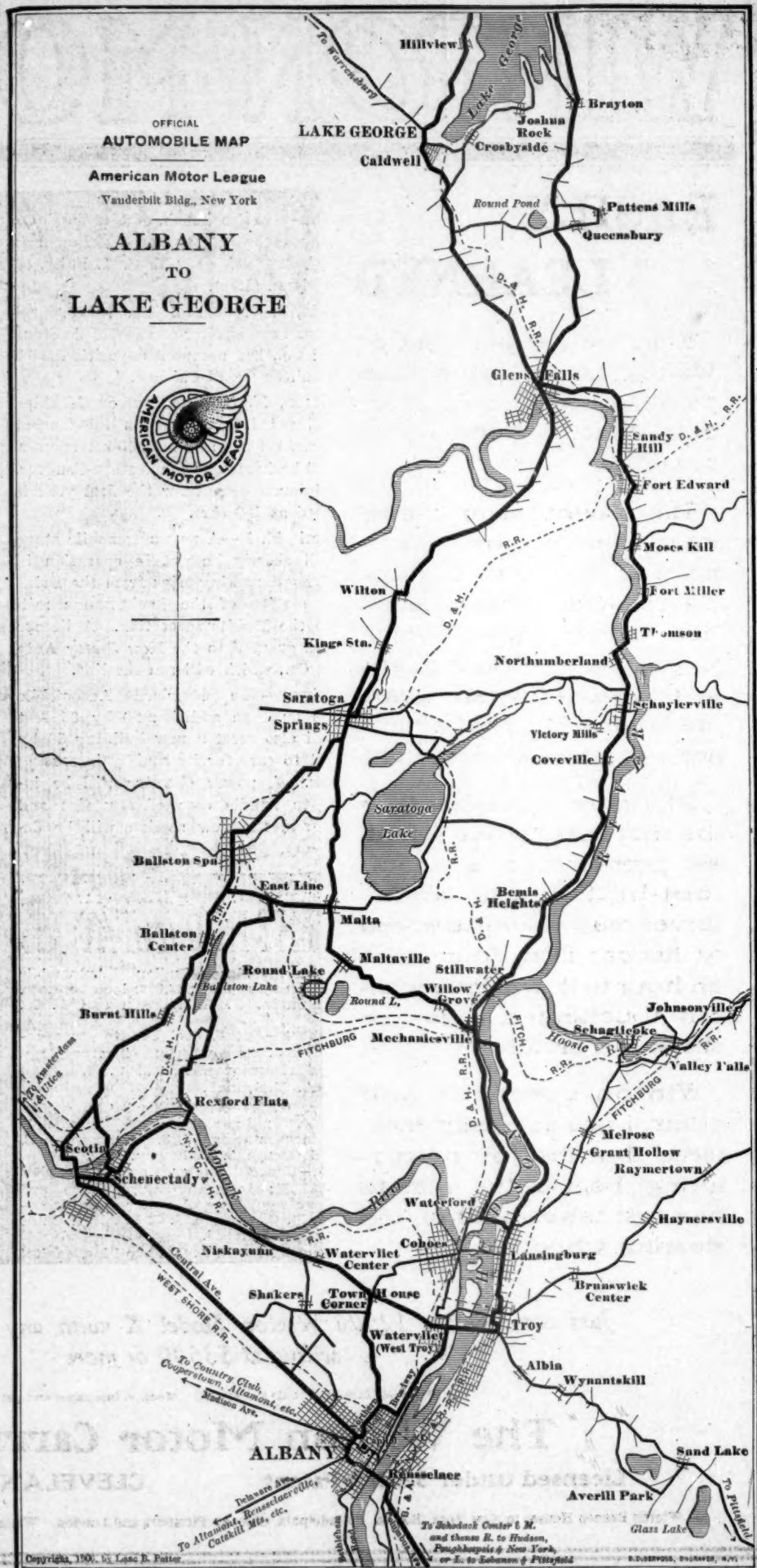
ALBANY TO LAKE GEORGE

There is no more delightful route in this country than that shown by this week's map. The three important cities, Albany, Troy and Schenectady, mark the three points of a triangle at the southerly end of the route, and from these the heavy lines run northward, one along the picturesque valley of the Hudson, and the other along the well-known highway through Ballston Spa and Saratoga Springs. At Albany the tourist will find the magnificent state capitol well worth a few hours' visit; the city contains many historic landmarks of the old "patroon" days; a short run to the southwest takes him to the delightful Helderberg region, and if he finds himself at the capital city on Sunday, he may spend an interesting half day by running out to the Shaker settlement and witnessing the service by which these peculiar people observe the Sabbath. At Watervliet, or West Troy, the famous Watervliet arsenal is located, with its wonderful equipment for turning out the great guns for naval and coast defense. Bemis Heights in Saratoga is a famous battle ground and no tourist would make this trip without stopping for a day at Saratoga Springs, so renowned for its spacious hotels and healing waters. There is a very fair road running from Saratoga Springs to and around Saratoga lake, supplying a delightful side trip with a number of good hotels along the way. At Ford Edward the villagers will point out the site of the cottage from which was taken the beautiful Jane MacRea at the time of her cruel assassination by the Indian envoys who were sent by her lover, a young British officer, to escort her to a point of safety.

Nearing Lake George the tourist finds the country both interesting and beautiful, and a few miles beyond Glens Falls the road skirts the historic "Bloody pond" and several old breastworks are seen which were thrown up in the days of Abercrombie. The whole trip in either direction is a most inviting one and may well deserve 2 or 3 days of one's time.

FREE TO LEAGUE MEMBERS

These maps are the best in the world and are getting better from week to week. They will be put into the official road books, free to all league members, and in the meantime will be printed on cards for convenient use. No initiation fee. Dues \$2 a year. Full information on request. Address American Motor League, Vanderbilt building, New York.



WINTON MODEL-K

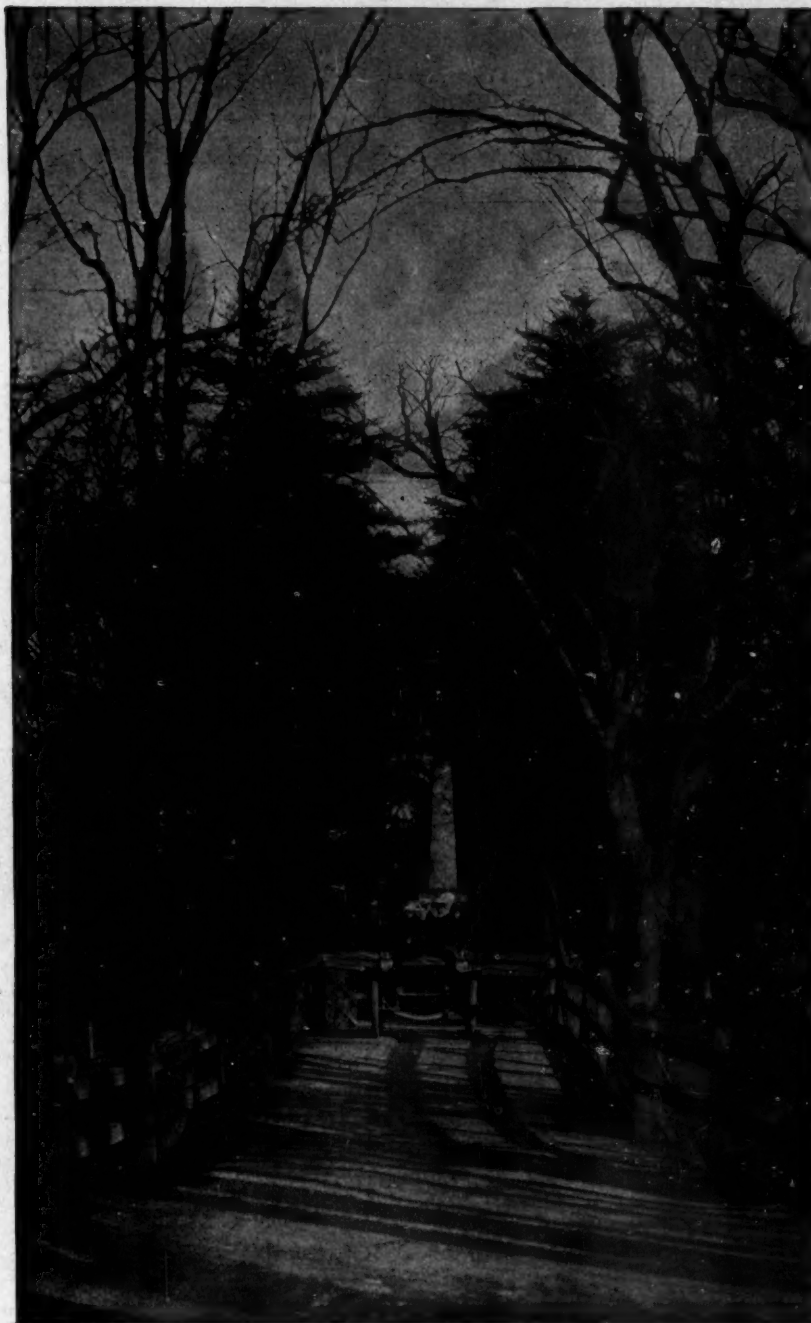
EASILY LEARNED

Fully ninety per cent of Winton users drive their own cars, and do not require the services of a chauffeur.

That's because of the remarkable Winton Transmission and Air Control. Each gear combination has its own clutch, which is engaged or disengaged at the same instant gears are changed. That simplifies operation wonderfully.

Still more remarkable is the fact that by the slightest pressure on a handy foot-button, the Winton driver may vary the speed of his car from four miles an hour to its top limit without touching a lever or shifting a clutch.

Winton operation and control are so easily mastered that the joy of motoring begins the minute one first takes hold of the steering wheel.



Just compare the \$2500 Winton Model K with any car on the market selling at \$3500 or more

"The Motor Car Dissected" tells the details. Mention this paper and get a copy from

The Winton Motor Carriage Co.

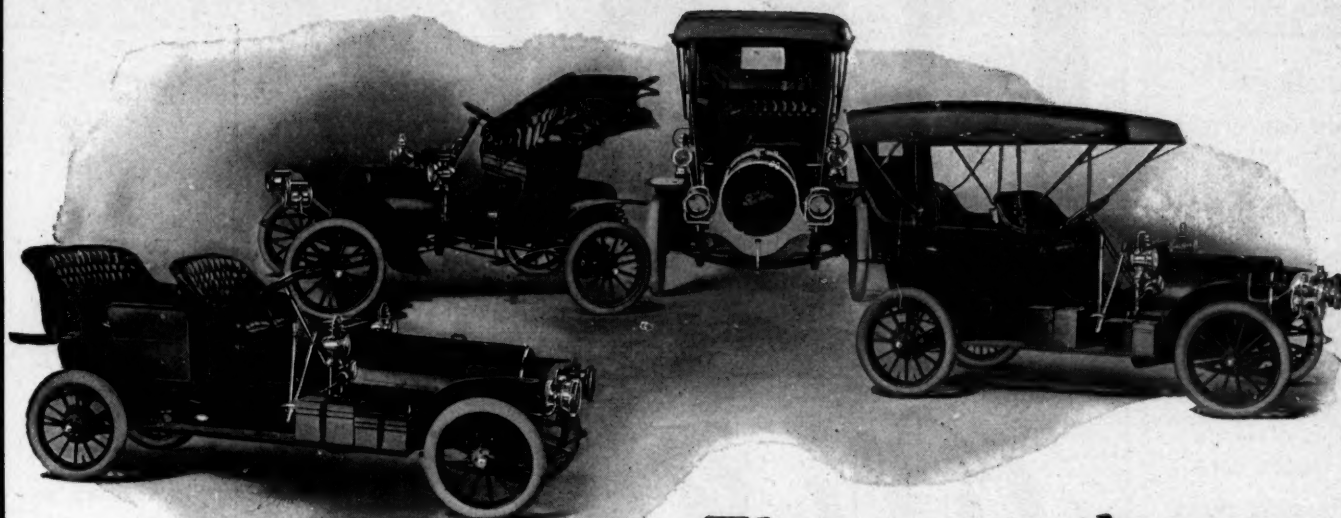
Licensed under Selden Patent

CLEVELAND, OHIO, U. S. A.

Winton Branch Houses in New York, Boston, Philadelphia, Chicago, Pittsburg and London. Winton Sales Agencies in all important places

When Writing to Advertisers Please Mention Motor Age.

FRANKLIN



**These are the cars
that proved it**

Five years ago—when most people denied it—we asserted that the Franklin 4-cylinder air-cooled motor and light-weight non-jarring construction made the ablest cars in the world. Now the cars shown above have completely demonstrated our claim.

A Franklin won and still holds the world's long distance touring and reliability record.

A Franklin won the first prize \$500 Punch-bowl from 65 of the ablest cars made in Europe or America, in the most important efficiency contest ever held.

A Franklin went farther on two gallons of gasoline than any other motor-car ever went in the world. A Franklin carried four passengers farther than any other car in the contest and six Franklins averaged 75 per cent more mileage than all the other cars.

These performances show that the Franklin engineering and construction are the most efficient and economical found in any car. They explain why Type D mentioned below has no equal among 4-cylinder cars for combined strength, speed and comfort on American roads.

No more water-cooling

"I am very much pleased with my Franklin Type D. For comfortable riding over rough roads and also power, I have never seen its equal. This is the fifth car I have owned and I never expect to own another water-cooled auto."

J. C. Eberhart, Jr., Mishawaka, Ind.

Four-cylinder Runabout \$1400

Shaft-driven Runabout \$1650

Four-cylinder Light Touring-car \$1800

Four-cylinder Touring-car \$2800

Six-cylinder Touring-car \$4000

f. o. b. Syracuse

Write for the book.

H. H. FRANKLIN MFG. CO., Syracuse, N. Y. M. A. L. A. M.

DELIVERIES NOW

We are the only concern actually delivering medium price four-cylinder cars as per guaranties.

Queen cars possess great hill-climbing ability, speed and endurance.

They are handsome in appearance and in every particular as good as they look.

Our Agents can prove these statements.

Agents:

Bay State Auto Co., 1003
Boylston St., Boston, Mass.
Majestic Auto Co., 54th St.,
and Broadway N. Y. City.
Hamilton Auto Co., 206 No.
Broad St., Philadelphia, Pa.
Branstetter Motor Co., 1337
Michigan Av., Chicago, Ill.
East Side Auto Co., Minne-
apolis, Minn.
Pacific Auto Co., Los Ange-
les, Cal.
Bordernish & Glancy, Day-
ton, Ohio
O. G. Roberts & Co., Colum-
bus, Ohio.
Essex Auto Co., Newark,
N. J.
Fugh Bros., Providence, R.I.
Trebert Gas Engine Co.,
Rochester, N. Y.

The Queen

4 Cylinder \$2000
26-28 h. p.

MODEL K

MOTOR—4 Cylinder—26-28 Horse-
power.

DRIVE—Shaft Bevel Gear.

FRAME—Pressed Steel.

WHEELS—32 x 4.

WHEEL BASE—101 inches.

TRANSMISSION—Sliding Gear.

FRONT AXLE—Solid Forged.

EQUIPMENT—Five Lamps, Horns,
Tools and Storage Battery.

GROUND PARTS—All Cylinders, Pistons, Piston Rings, Crank
Shaft, Valves, Universal Coupling and Transmission Shafts.

Dealers who are making sales but cannot get
deliveries, Write or Wire us TODAY

C. H. Blomstrom Motor Co.

DETROIT, MICH.

We want a few more Agents to whom we guarantee delivery—
car load lots or single machines in
Two Days.

We also guarantee to rebate Agent's commission

on all orders for four cylinder cars, accepted by us—if we fail to ship in two days from receipt of order.

We give live Agents
Interesting Discounts.
Write or wire today

Let us give you a Pointer

Next time you buy a car don't ask the salesman how much horsepower the "engine" has, but ask him how much horsepower he will guarantee to deliver to the rear wheels, and how much the car actually weighs. Then take your pencil and divide the car weight by the horsepower—the result gives the Ability of the car. If this figure is better than 150 lbs. per horsepower, the car is reasonably efficient. The Ability of the Stevens-Duryea is 90 lbs. per horsepower. There is nothing on the market to-day that can compare with it in this respect. This great ability is due to our famous Unit Power Plant supported on Three Points.

Our Booklet explains.

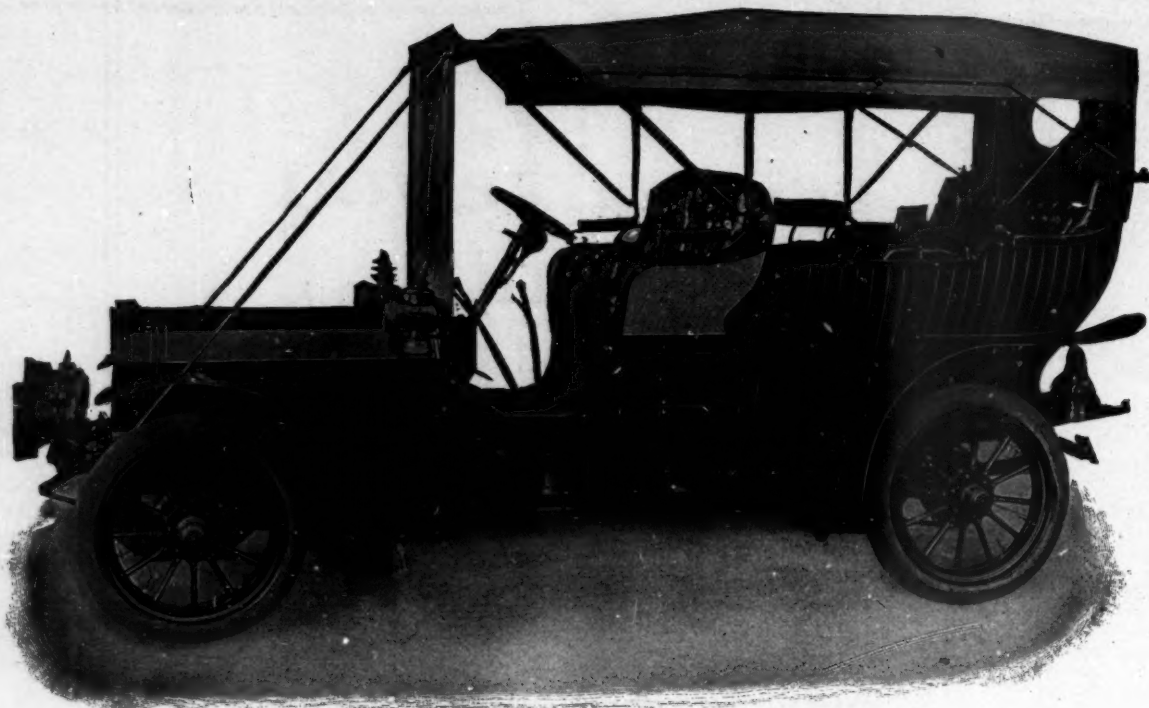
The Stevens-Duryea Co.

Makers of the Twentieth Century Hustler
and the BIG SIX

705 Main St., CHICOPEE FALLS, MASS.

Members A. L. A. M.

APPERSON



1906 Models are Built Strong as Locomotives
For Every Day Service the Year Around.

Apperson Cars give better and more regular service at less expense
than any car made.

We Make Nothing but High Class, High
Priced Cars for Those Who Want the Best.

BRANCHES:

66 West 43d St., NEW YORK

43 Columbus Ave., BOSTON

326 N. Broad St., PHILADELPHIA

1238 Michigan Ave., CHICAGO

Apperson Bros. Automobile Co.

Members Association Licensed Automobile Manufacturers.

KOKOMO, INDIANA

FINE FOR EMERGENCIES

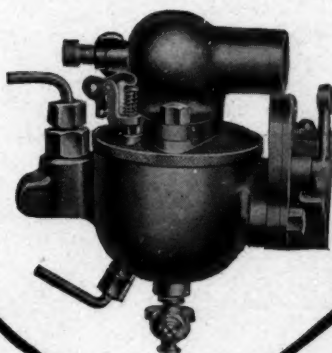
During the recent Chicago-to-New Motor Car Relay Contest, held under the auspices of the Chicago Daily Examiner, a **BUICK** car, serving in the capacity of "Emergency Escort" from end to end—went through regardless of terrific cloudbursts, indescribable mud and almost impassable roads with never a skip, stop or falter. The engine of the Buick car was equipped with a

Schebler Carburetor

Men who run cars similarly equipped will understand

SCHEBLER CARBURETOR

HEART OF THE AUTOMOBILE



There are a great many good cars and a good many fine engines for automobiles, but in all the world there is but one carburetor which does **all** that is asked of it—as often as wished and under all kinds of conditions, both atmospheric and otherwise.

The Schebler Carburetor

has earned for itself the reputation of being **Standard of the World** and those who are familiar with its **perfect** construction best know **why**.

Write for Illustrated Catalogue

WHEELER & SCHEBLER,

Manufacturers

P. O. BOX 276
INDIANAPOLIS, INDIANA

E. J. Edmond, 75 and 77 W. 44th St., New York.
Pope Manufacturing Co., Hartford, Conn.
Excelsior Supply Co., Chicago, Ill.
Automobile Supply Co., Chicago, Ill.
Beckley-Ralston Co., Chicago, Ill.
Motor Car Supply Co., Chicago, Ill.
E. B. Belcher, 26 Green St., Malden, Mass.
Hub Automobile Exchange, Dorchester, Mass.
J. W. Lathrop & Co., Mystic, Conn.
National Electrical Supply Co., Washington, D. C.

G. D. Thorndike, State of Maine Agt., Portland, Me.
Joe. Brassard, Central Falls, Rhode Island.
Wallace Bros. Co., Norfolk, Va.
Paul P. Rippen, 1207 Race St., Philadelphia, Pa.
Smith Elec. Engineering Co., Watertown, N. Y.
Kansas City Motor Car Co., Kansas City, Mo.
Neustadt Auto & Supply Co., St. Louis, Mo.
Phoenix Auto Supply Co., 3932 Olive St., St. Louis, Mo.
C. J. Smith & Co., 354 St. Peters St., St. Paul, Minn.
E. R. Cumbe, 1618 Court Place, Denver, Colo.

F. C. Bowlin, 332, Baronne St., New Orleans, La.
Chanslor & Lyon Motor Supply Co., 930 S. Main St., Los Angeles, Cal.
Chanslor & Lyon Motor Supply Co., 608 Golden Gate Ave., San Francisco, Cal.
Wilson & Co. Ottawa, Ontario, Canada.
McCulloch & Boswell, Winnipeg, Manitoba.
Canada Cycle Motor Co., Toronto, Ont., Canada.
Schuman Carriage Co., Honolulu, T. H.
Geo. Neill & Co., 38 Fenchurch St., London, England.

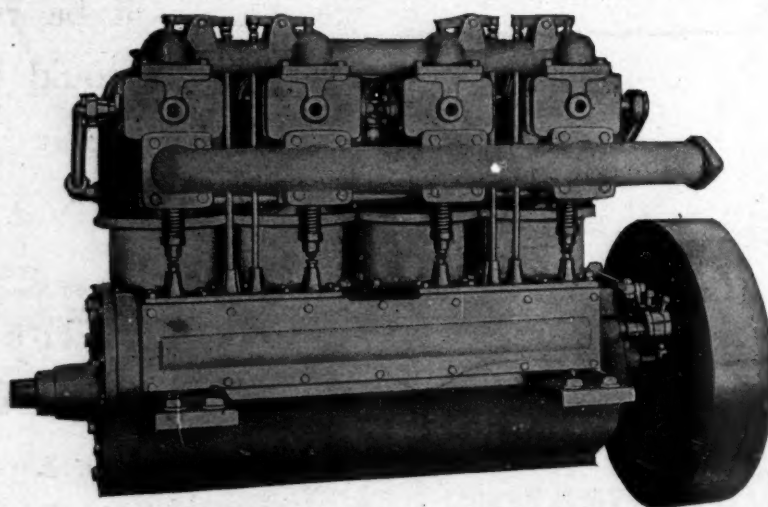
The question with the automobile public today
is not "How Old is Ann," but what
are they doing at

ST. ANNE

We will answer this question by saying that we
are building the "PERFECT" kerosene motor,
which is the only automobile motor that uses

CHEAP KEROSENE INSTEAD OF THE EXPENSIVE GASOLINE

All sizes
from
10 H.P.
to
60 H.P.
Special
Sizes to
Order



LIGHT, RELIABLE, POWERFUL

We also
Make
Kerosene
Engines
for
Stationary
Purposes

Do you know about our transmission? If not, let us tell you.
If you want to know more about what we are doing at St. Anne
write us today, and we will take pleasure in telling you all about
our kerosene motors. Address


ST. ANNE KEROSENE MOTOR COMPANY

ST. ANNE, ILLINOIS

To Sellers and Users

OF

CLINCHER TIRES

 We have commenced and are vigorously prosecuting suits for infringement of our patents against the Pennsylvania Rubber Company and the Michelin Tire American Agency, Inc., on account of the sale of Clincher tires.

The sellers and users of infringing tires are equally liable with the manufacturers of such tires. Whatever rights we may have under our patents will be rigorously enforced. To escape liability, purchases should be made from one of the following named manufacturers, who are licensed to manufacture or sell under the G & J patents:

G & J Tire Co.

Hartford Rubber Works Co.

Morgan & Wright

B. F. Goodrich Co.

Diamond Rubber Co.

Goodyear Tire & Rubber Co.

Fisk Rubber Co.

**International Automobile &
Vehicle Tire Co.**

Continental Caoutchouc Co.

G & J TIRE CO.

Indianapolis, Ind.

\$7.50WORTH OF THE BEST AUTOMOBILE
READING MATTER

FOR

\$5.00**MOTOR AGE**

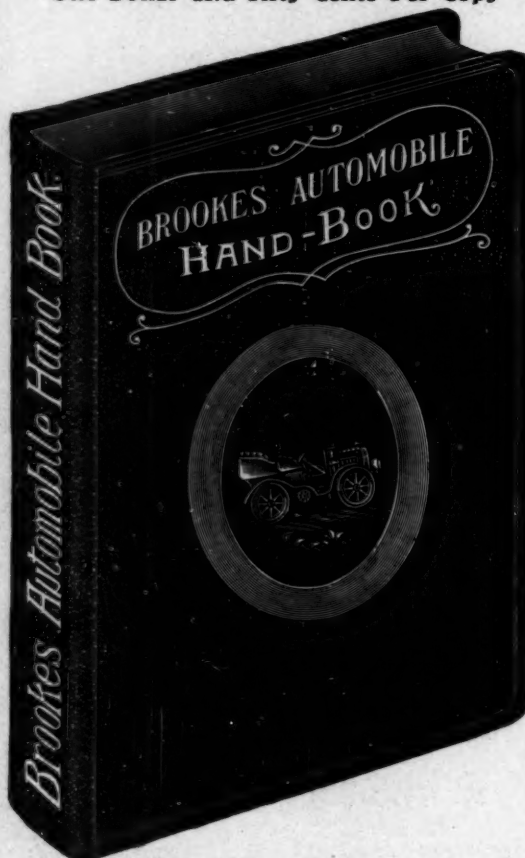
Weekly, for One Year, \$2.00

MOTOR

Of New York, Monthly, for One Year, \$3.00

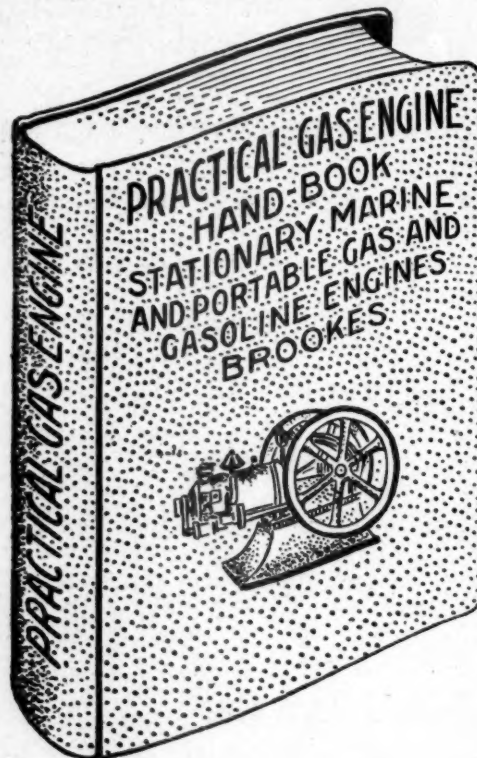
One Dollar and Fifty Cents Per Copy

One Dollar Per Copy



Pocket Size 320 Pages

**All
Four
for
\$5**



New Edition

Pocket Size 300 Pages

A work of practical information for the use of owners, Operators and Automobile Mechanics, giving full and concise information on all questions relating to the construction, care and operation of gasoline and electric automobiles, including Road Troubles, Motor Troubles, Carburetor Troubles, Ignition Troubles, Battery Troubles, Clutch Troubles, Starting Troubles. With numerous tables, useful rules and formulas, wiring diagrams and over 100 illustrations.

A manual of useful information on the care, maintenance and repair of Gas and Oil Engines.

This work gives full and clear instructions on all points relating to the care, maintenance and repair of Stationary, Portable and Marine, Gas and Oil Engines, including How to Start, How to Stop, How to Adjust, How to Repair, How to Test, with a special chapter devoted to Motor Boats.

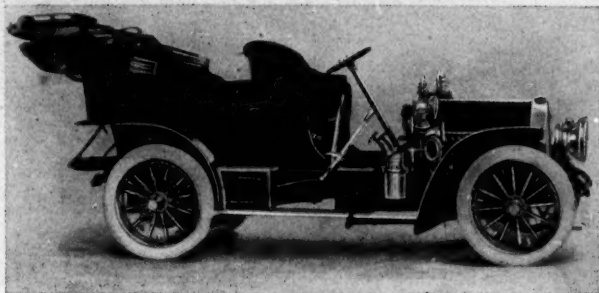
Or the Choice of the Following Combinations:

MOTOR AGE one year and one copy Practical Gas and Oil Engine Hand Book for	- - -	\$2.00
MOTOR AGE one year and one copy of Brookes' Automobile Hand Book for	- - -	\$2.50
MOTOR of New York and MOTOR AGE one year and Practical Gas Engine Hand Book for	- - -	\$3.50
MOTOR of New York and MOTOR AGE one year and Brookes' Automobile Hand Book for	- - -	\$4.00

Send All Orders
Direct to

MOTOR AGE, 309 Michigan Ave., **Chicago**

Locomobile



Model "H"

30-35 H. P.

This car will appeal to automobilists of experience who have had indifferent success with cheaper cars. Make-and-break, with low tension magneto used for second season. The simplest, most effective and most reliable ignition system. Iridium contacts. Battery equipment and compression release to facilitate starting.

Our new catalogue omits generalities and dwells on the specific points in which the purchaser is interested. Mailed on application.

The **Locomobile** Company of America, Bridgeport, Conn.

Member Association of Licensed Automobile Manufacturers.

NEW YORK, Broadway and 76th St. } Branches { BOSTON, 15 Berkeley St.
PHILADELPHIA, 249 N. Broad St. } CHICAGO, 1354 Michigan Ave.

Locomobile DEALERS:

Albany, N. Y., Taylor Automobile Co., 33-35 Orange St.
Boston, Mass., Locomobile Co., 15 Berkeley St.
Buffalo, N. Y., Jaynes Automobile Co., 883 Main St.
Brooklyn, N. Y., I. S. Remson Mfg. Co., 750 Grand St.
Binghamton, N. Y., Sterling Motor Car Co.
Baltimore, Md., Callahan, Atkinson, 1020 Morton St.
Brockton, Mass., W. H. Marble.
Chicago, Ill., Locomobile Co., 1354 Michigan Ave.
Cincinnati, O., Hanauer Automobile Co., 115 E. 7th St.
Columbus, O., Curtin-Williams Automobile Co.
Cleveland, O., R. H. Magoon Motor Car Co., 410 Erie St.
Denver, Colo., Judge E. A. Colburn, Equitable Bldg.
Davenport, Iowa, E. S. Johnson, Rockingham Road.
Dayton, O., Miami Motor Car Co.
Des Moines, Iowa, Riddell Automobile Co.
Elmira, N. Y., Chemung Automobile Co.
Fall River, Mass., Sterling Mfg. Co.
Havana, Cuba, German Lopez.
Lincoln, Neb., Lincoln Auto Co.
Los Angeles, Cal., Success Auto Co.
Marlboro, Mass., Frank Billings.
N. Y. City, N. Y., Locomobile Co., 76th St. and B'way.
Newark, N. J., Greene Motor Car Co., 776 Broad St.
New Bedford, Mass., S. C. Lowe Co., 22 Fourth St.
Norwalk, Conn., F. E. Lockwood & Co.
New Orleans, La., Automobile Co., Ltd.
New Haven, Conn., Holcomb Co., 109 Goffe St.
Philadelphia, Pa., Locomobile Co., 249 N. Broad St.
Poughkeepsie, N. Y., William Lawson.
Providence, R. I., Davis Auto Co., Inc., 7 Dorrance St.
Rochester, N. Y., Joseph J. Mandery, 170 South Ave.
St. Joseph, Mo., Wyeth Auto Co.
St. Louis, Mo., Capen Motor Car Co., 4743 McPherson Ave.
San Francisco, Cal., Loco Agency, 1807 Gough St., temp.
Syracuse, N. Y., Amos-Pierce Auto Co., 109 State St.
Springfield, Mass., Springfield Auto Co., Cooley House.
Washington, D. C., Cooke & Stoddard, 22d and P Sts.
Waterbury, Conn., E. H. Towle Co.
Wilkesbarre, Pa., Wyoming Valley Motor Car Co.
Wichita, Kansas, A. S. Parks.

There is no motor car the equal of a
SINGLE CYLINDER

Cadillac

at the price of a

SINGLE CYLINDER

Cadillac

There is no motor car at any price that will give so much actual motor car value for every dollar invested as a

SINGLE CYLINDER

Cadillac

There is no motor car at any price that is less expensive to maintain than a

SINGLE CYLINDER

Cadillac

There is no motor car at any price that will climb any hill that cannot be climbed by a

SINGLE CYLINDER

Cadillac

There is no motor car at any price that will travel any road that cannot be traveled by a

SINGLE CYLINDER

Cadillac

There is no motor car at any price that so persistently "makes good" in spite of abuse as the

SINGLE CYLINDER

Cadillac

There is no motor car at any price which second hand will readily sell for so great a percentage of its original price as a

SINGLE CYLINDER

Cadillac

All points worth thinking about

Light Runabout \$750

Light Touring Car \$950

CADILLAC MOTOR CAR CO.
DETROIT, MICHIGAN

Members Association Licensed Automobile Manufacturers.

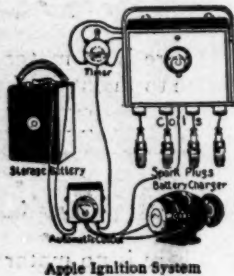
A fully charged storage battery furnishes the best ignition current.

No one will dispute that.

The Apple system of "Floating the battery on the line" provides a fully charged battery at all times.

The Apple Battery Charger charges the battery at the same rate and at the same time that the battery gives off its current.

When the battery is "Floated on the line" its efficiency is increased, its life is lengthened and the expense for charging which would otherwise be incurred, is saved.



This system provides a complete charging plant—an inexhaustible current supply—especially adapted to automobile use, right aboard your car.

It furnishes ample available current for the starting spark, electric lights, electric horns, annunciator bells, etc. No other than the Dynamo Storage Battery system will do this.

The Apple Battery Charger is a governed dynamo, turned by the engine fly-wheel. It is designed and built as well as any dynamo in the world irrespective of size or use for which intended.

It is entirely enclosed, free from dirt, dust, water and oil.

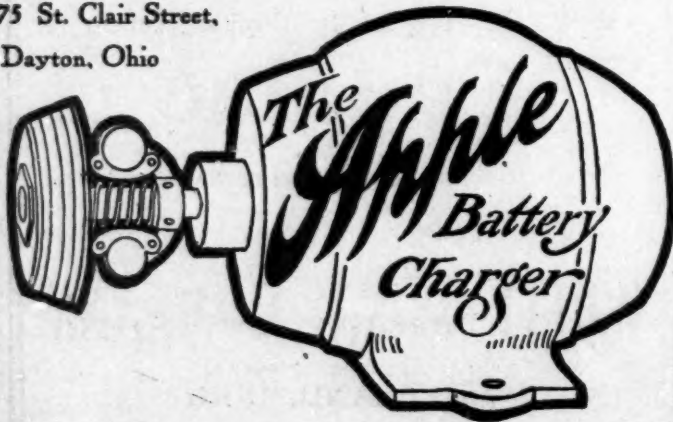
It can be used in any position, and can be installed on any automobile.

Write to-day for full information stating whether your engine is make and break or jump spark.

The Dayton Electrical Mfg. Co.,

75 St. Clair Street,

Dayton, Ohio



GOOD ADVICE

At Least

DO US and YOURSELF

the justice of examining
this car before paying
more money for a car
NOT SO GOOD

It's More than We Claim for it

MITCHELL MOTOR CAR CO.

RACINE, WISCONSIN

Members American Motor Car Manufacturers' Association.

When auto experts prepare for an unusual undertaking they choose tire equipment with much care. They want **THE BEST**.

Of the 22 cars in the great Chicago-New York relay run,



Diamond Wrapped Tread Tires

were the equipment on ten of the flyers.

Highest number of cars equipped with one make of tire other than Diamond—4.

In this run J. F. Bastar carried a message 1024 miles, from General Carter, at Chicago, to General Grant, at New York, in 60 hours, June 18-21.

He sent frequent despatches while enroute. They were full of reports of very bad roads. At one point a cloudburst was encountered.

DIAMOND TIRES BORE UP MAGNIFICENTLY

That's why so many cars were equipped with them.

The auto experts took no chances.

Their choice should carry some weight with you, if you are undecided about tire equipment.



Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

The Diamond Rubber Co.
AKRON ... OHIO

... BRANCHES ...

NEW YORK.....	78 Reade Street
NEW YORK.....	1717 Broadway
BOSTON.....	174 Columbus Avenue
PHILADELPHIA	304-306 N. Broad Street
BUFFALO.....	715 Main Street
DETROIT.....	258 Jefferson Avenue
CLEVELAND	1514 Euclid Avenue
CHICAGO.....	1523-31 Michigan Avenue
ST. LOUIS.....	3966 Olive Street
MINNEAPOLIS	503 Second Avenue South
DENVER.....	1735 Arapahoe Street
SAN FRANCISCO.....	

THE INCOMPARABLE

WHITE

THE CAR FOR SERVICE



Another Big Victory Abroad

The annual open hill-climb of the Midland Automobile Club, held June 16th, the biggest event of the kind in England, resulted in a clean-cut victory for an 18 H. P. White steamer. The White climbed the hill six seconds faster than any of its 34 competitors, which included all the best-known English, French and German cars, the ratings of which ranged up to 60 horsepower.

Thus is added another to the long string of White victories abroad, which commenced with the winning of the English Reliability Trials in 1902.

Write for new Testimonial Booklet

WHITE SEWING MACHINE COMPANY

CLEVELAND, OHIO

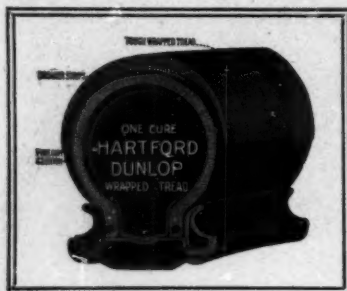
QUALITY BEGETS SERVICE

You Want . . .
You Must Have **Good Tires**
We Make . . .

HARTFORD

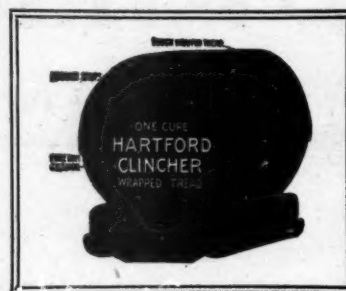
Dunlop Clincher Universal Rim

The Hartford Rubber Works Co. HARTFORD CONNECTICUT



NEW YORK
PHILADELPHIA
CLEVELAND
CHICAGO
SAN FRANCISCO

BOSTON
BUFFALO
DETROIT
DENVER
LOS ANGELES



Increased Output—Lower Prices

Wayne

Model H, \$650.00 Without
Model G, \$850.00 Horn or Lamps

The increased demand for a popular-priced Runabout and Family Touring Car has led to arrangements being completed whereby we can largely increase our output, and in so doing can afford to make new list prices on Models H and G.



WAYNE MODEL H, with 14 H. P. Double Opposed Motor under Hood and Shaft Drive

The double opposed motor under the hood is undoubtedly the standard type of engine for a car of medium power to sell at a popular price. This construction is extremely simple, and it enables the manufacturer to put the best materials and the highest grade of work into his chassis.

These models are standard types. The chassis of each is the same. "H" is a two-passenger runabout, while "G" seats comfortably four people, and on a pinch five. These models will never be out of date. Ten years from now manufacturers will still be building double opposed motors, because this type engine gives absolute satisfaction.

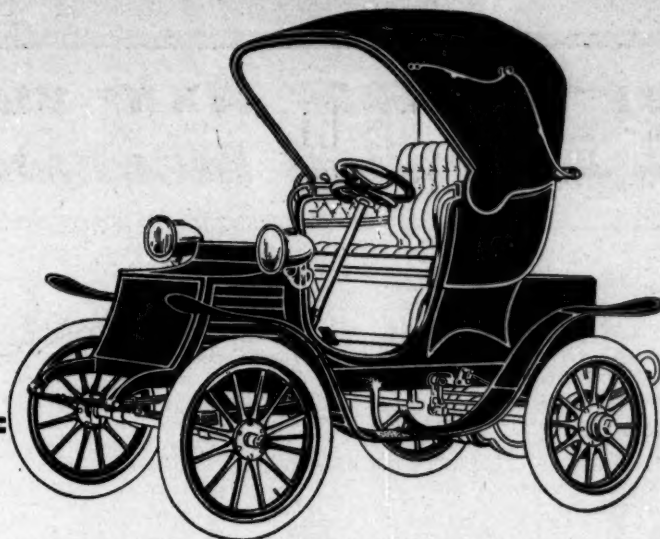
We have delayed this announcement until we were in a position to make immediate delivery. Now, with our increased output, we can ship either Model H or G at once on receipt of your order.

Write us for agency terms—we'll give you cars, not promises. We shall be glad to send our new catalog, describing fully these models and our high power four-cylinder cars.

WAYNE AUTOMOBILE CO.

Dept. 2.

Detroit, Mich.



The Stately Stylish Pope-Waverley Stanhope

Model 53 STANHOPE SPECIAL, Price \$2000

has many new and distinctive features. It is truly a departure in many particulars, and yet none of its features are radical in principle or untried in practice. The hooded dash, the sliding steering wheel and in connection with it the operation of the electric controller, the use throughout of self contained bearings and the axle of floating type have all been carefully thought out and will be appreciated at a glance. The painting, upholstery and all the appointments of a fine carriage have been studied in detail. We make runabouts, surreys, stanhopes, coupes, station and delivery wagons. Also electric trucks. **WRITE FOR CATALOGUE.**



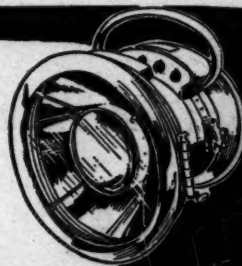
POPE MOTOR CAR CO.

Waverley Dept. INDIANAPOLIS, IND.

BOSTON, 223 Columbus Ave.

N. Y. CITY, 1733 Broadway

WASHINGTON, D. C., 319 14th St., N. W.



If you Ride at Night you want a SOLAR

Don't Buy a Lamp Because It's Pretty—Get Light

The SOLAR has a long and penetrating ray that expands to the full width of the road as far ahead as your eyes can see, and a shorter and broader focus that uncovers the nearby obstructions before you reach them.

SOLAR construction is strong enough to stand anything but a head-on-collision.

Its mirror is made by Bausch & Lomb.

The SOLAR GENERATOR has the only water jacket which entirely surrounds the generating chamber so the gas is cool when it reaches the tip.

Look out for soldered generators if you don't want trouble—the SOLAR is round and made from solid brass shells without seams or welds—all square generators are made of a number of pieces soldered, welded or riveted together—when you know the difference, you wouldn't take one as a gift.

Compare the SOLAR combination with any other—that's all we want.

BADGER BRASS MF'G. CO.

Kenosha, Wisconsin

11 Warren St., New York City

HAYNES

Rear Axle and Driving Mechanism

All the bad features of beveled gears and side chains and sprockets are overcome in the Haynes construction. The axle is a 1½-inch shaft of nickel steel of 100,000 lbs. tensile strength and 70,000 lbs. elastic limit. One wheel is keyed to this nickel steel shaft, which also bears one member of the differential; over the opposite end is a close-fitting steel sleeve extending to the center; on its outer end is keyed the other wheel, while the other member of the differential is attached to its inner end. Secured to the differential is a large beveled sprocket gear (the driving gear of the car), which is driven by a pinion keyed to the rear universal joint, on which rollers take the place of teeth. This pinion has a double roller bearing on one end, and a long, plain bearing on the other end. The entire driving mechanism and axle are enclosed in a steel

housing and strengthened by a truss rod extending from end to end. The axle runs on four sets of flexible roller bearings. Thrust is entirely eliminated, friction is greatly reduced, and it is absolutely noiseless.

The Haynes is the highest powered, shaft-driven car built.

In requesting catalog, for prompt attention address Desk A22.



"The Car the Repairman Seldom Sees"

HAYNES AUTOMOBILE CO., Kokomo, Ind.

MEMBERS A. L. A. M.

CHICAGO, 1420 Michigan Ave.
NEW YORK, 1715 Broadway

MODEL "R" FOUR-CYLINDER TOURING CAR.
Vertical roller-bearing engines. Cylinders cast separately, 5¼x6 inches, 50 H. P. An exclusive transmission that absolutely prevents stripping of gears. Positive cooling system. Individual and special lubrication. Master Clutch has metal faces and takes hold without jerking. Shaft drive. Exclusive universal joints that prevent wear on pins. Sprocket and Roller Pinion and perfect Rear Axle, all exclusive. Roller bearings throughout. 108-inch wheel base. 54-inch tonneau, seating five people. Four to 60 miles an hour on high gear. Weight, 2,750 pounds. Price, \$3,500, f. o. b. Kokomo. Full equipment.

MODEL "O" FOUR-CYLINDER TOURING CAR.
Cylinders cast in pairs 4¼x5 in., 28 to 30 H. P. Transmission, cooling system, lubrication, master clutch, shaft drive, universal joints, sprocket, roller pinion and roller bearings and body same as on Model "R." 97-inch wheel base. 4-inch tires. Tonneau seating three persons. Four to 40 miles an hour on high speed. Price, \$2,250, f. o. b. Kokomo. Full equipment.

Compression?

YOU OUGHT TO KNOW

Uniform compression makes your motor run smooth and powerfully. Leaky valves destroy compression. This is a known fact. It is almost impossible to know the compression in an engine cylinder at any speed without the use of a

COMPRESSION REGISTER

SIMPLY Remove a spark plug—screw into its place the register, turn the crank (either by hand or by power of the other cylinders) and the compression will be registered on the dial, the indication remaining fixed until noted and released. Each cylinder can thus be tested separately.

ABSOLUTELY ACCURATE

INDESTRUCTIBLE

Same instrument, with tire attachment, also registers tire pressure. Tires are expensive. Too expensive to trifle with. The right pressure increases life of tires and prevents fabric breaks. This instrument, same size as illustration, finished in nickel, with either tire or cylinder compression attachment, \$5.00 postpaid. Instrument with both attachments, \$6.00. Give size of spark plug and threads in ordering.

Owners of motor cars, chauffeurs, dealers, repairmen and factory superintendents will find this an invaluable adjunct to their repair outfits. Past experience tells WHY.

AUTO NOVELTY CO., - Milwaukee, Wis.

References: First National Bank, Wisconsin National Bank, Milwaukee, Wis.

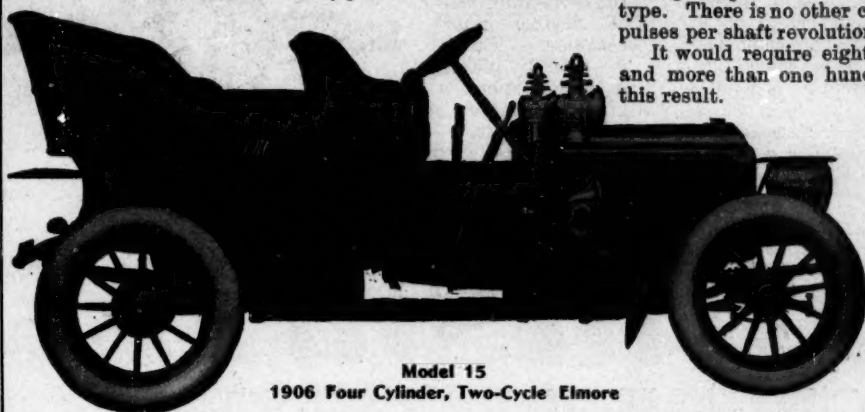


Patent
Applied
For.

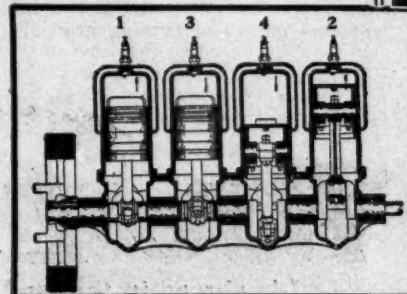
ELMORE Stands for SIMPLICITY

If you will look into the ELMORE system you will quickly see why it is the criterion by which *simplicity* and *efficiency* in automobile construction must be judged.

The valveless Two-cycle motor has come to stay. The success of the ELMORE proves it. Every ELMORE cylinder produces—with-
out valves or other small auxiliary parts—double the number of energized piston strokes that are possible in the ordinary, four-cycle type. There is no other car, therefore, that can give you as many impulses per shaft revolution as the four cylinder, Two-cycle ELMORE.
It would require eight four-cycle cylinders with sixteen valves and more than one hundred and fifty small parts to accomplish this result.



Model 15
1906 Four Cylinder, Two-Cycle Elmore

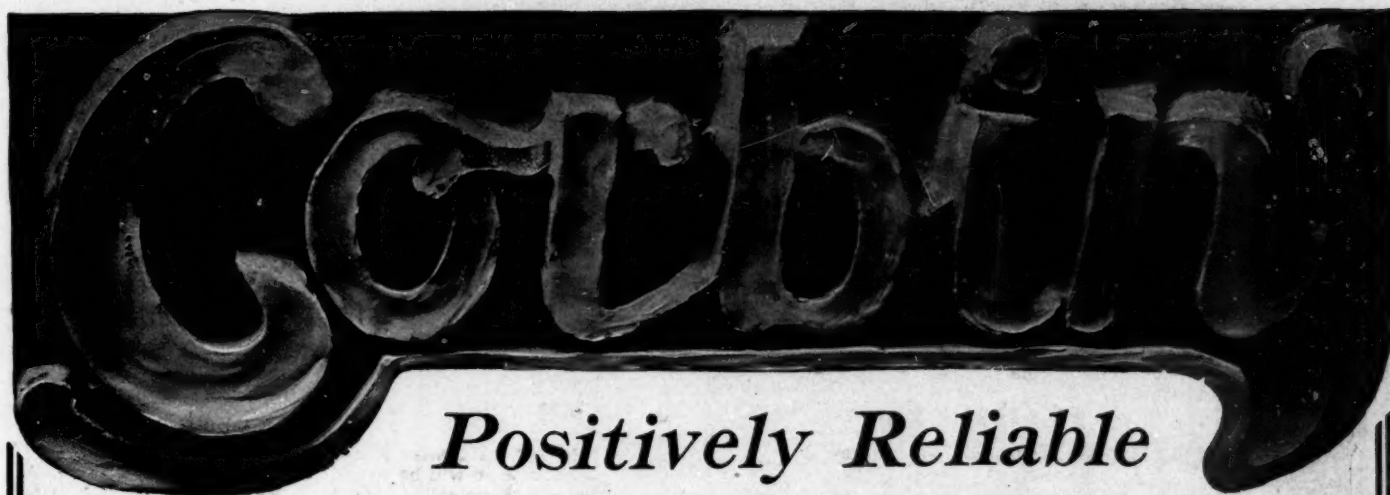


Consider what it would mean to keep sixteen valves working at one two-hundredth of a second adjustment! The valveless Two-cycle ELMORE dodges the adjustment problem, and practically every other sort of engine trouble as well. So long as there is gasoline and a hot spark, you needn't worry.
Don't you want the ELMORE booklet, telling all about this famous car?

THEY START FROM THE SEAT
MODEL 15, FOUR CYLINDER, TWO-CYCLE ELMORE, \$2,500.00

THE ELMORE MFG. COMPANY, 804 Amanda St., CLYDE, O.

Members Association Licensed Automobile Manufacturers.



- ❑ Perfect cooling, assured by the CORBIN Patented System.
- ❑ The Material used in Corbin construction is absolutely the best obtainable, regardless of cost.
- ❑ A demonstration will convince you of the correctness of its design.

THE CORBIN MOTOR VEHICLE CORPORATION ... New Britain, Conn.

1779 Broadway, New York City.
Motor Mart, Park Square, Boston, Mass.
1470 Michigan Ave., Chicago, Ill.
206 North Broad St., Philadelphia, Pa.

5905 Centre Ave., Pittsburg, Pa.
115 East 7th St., Cincinnati, Ohio.
670 Main St., Buffalo, N. Y.
Court & Exchange Sts., Rochester, N. Y.

415 Golden Gate Ave., San Francisco, Cal.
12th & State Sts., Erie, Pa.
E. Market & Williams Sts., Elmira, N. Y.
122 Bridge St., Springfield, Mass.

GOODRICH



Tire Enthusiasm

It's abroad in the land and catching when you come in contact with Goodrich Quick Detachable Tire users.

Enthusiasm is a habit with us and has helped to find ways for doing things bigger and better than ever before.

A power for good, and mightily in evidence when you use Goodrich Tires.

The B. F. Goodrich Company : Akron, Ohio

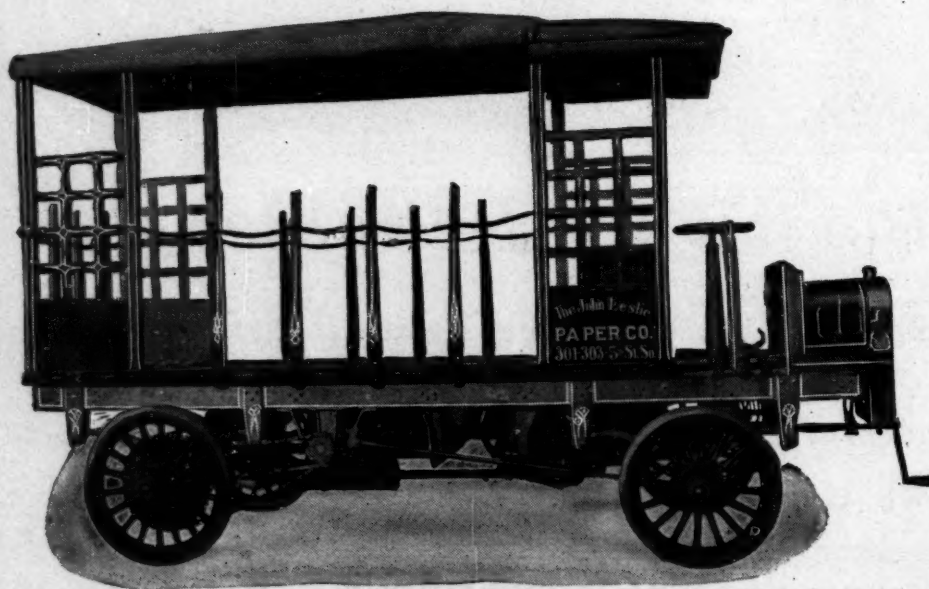


Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.

New York, 66-68 Reade St. and 1625 Broadway
 Oakland, Cal., 4th Ave. and Washington St.
 Boston, 161 Columbus Ave.
 Detroit, 80 East Congress Street
 St. Louis, 3926-28 Olive St.

Chicago, 24 East Lake St.
 Philadelphia, 900 Arch St.
 Buffalo, 731 Main St.
 Denver, 1444 Curtis St.
 Cleveland, 2188 Ninth St., S. E.
 London, E. C., 7 Snow Hill.

2-TON TRUCK 30-Horsepower, 4-Cylinder Horizontal Motor



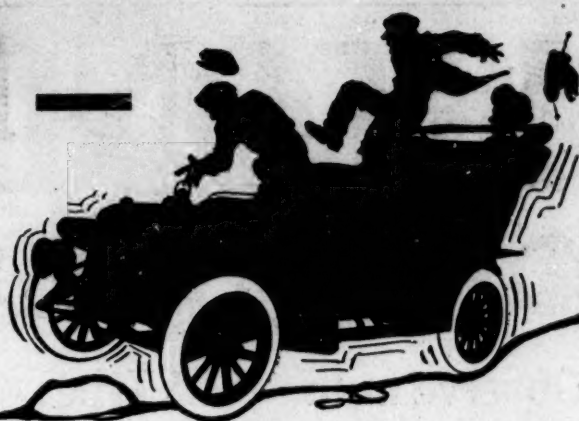
Why did Standard Oil Co. place contract with us?

Because, after testing all makes of Trucks, they found our's best for commercial purposes.

**Starts from
Seat**

**KANSAS CITY MOTOR CAR CO., KANSAS CITY
MISSOURI**

?



This illustration shows view looking along axle toward wheel from inside of machine.

WHY BUMP THE BUMPS?

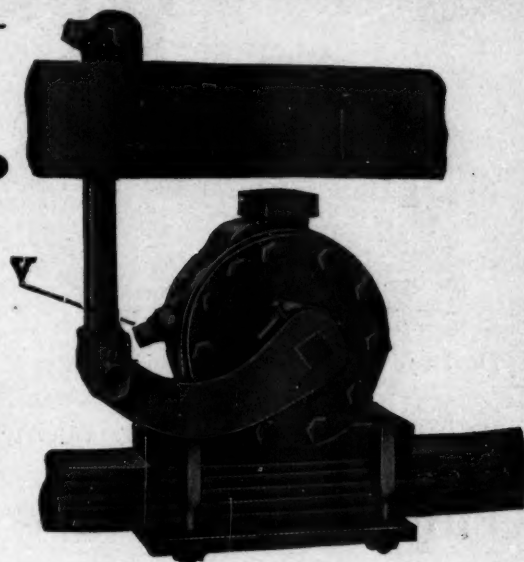
The Hotckin Anti-Jolt Device

permits of easy, comfortable riding on the roughest of roads. It is the only Shock Eliminator that actually does away with all jolts and jars.

The device is hydraulic, and works in one direction only—on the recoil. The natural compression of the springs is not checked, but the recoil IS effectually checked, thus making the tonneau a place of comfort instead of a torture chamber.

It prevents jolting, broken springs and injury to the spines of the passengers. By reducing the vibrations, it secures better traction, higher speed, greater life of tires, stronger nerves and better temper for the motorist.

This device is **READILY ADJUSTABLE** to all classes of vehicles at the Valve V. **WHEN ADJUSTED, IT STAYS ADJUSTED.** For full information, prices, etc., address



P. M. HOTCHKIN, 4023 Lake Avenue, CHICAGO, ILL.

MICHELIN

MICHELIN QUALITY is not only the kind that shows on the surface but the kind that don't begin to be discovered until it's needed, but that we the makers, and you if you use them, know is there.

It's one of the things that goes to make "Michelin Miles" not like any other in the world.

MICHELIN PRODUCTS SELLING CO.

E. D. WINANS, GENERAL MANAGER, *Exclusive American Representative of* MICHELIN & CIE, CLERMONT-FERRAND, FRANCE.

31-33 West 31st Street, NEW YORK CITY

Write for full particulars.

TELEPHONE } 5560 MADISON AVENUE
5561

Write for facts and figures of Michelin Tires.



Single type for channels
2½-inch to 8-inch

"FIRESTONE" MOTOR TIRES



Dual type for duplicating any width of single independently—more economy, for which Firestone Tires are famous.

Observe in the Dual Type:

☞ Adaptability to heaviest work.—Positive and independent fastening for both edges of each tire—absolute security.

☞ Sections can be repaired or replaced independently—more economy, for which Firestone Tires are famous.

FIRESTONE TIRE & RUBBER CO. ::: AKRON, OHIO

BRANCHES

New York, 1788 Broadway Boston, 9 Park Sq. Philadelphia, 211 N. Broad St. St. Louis, 2226 Olive St. Chicago, 1442 Michigan Ave. Detroit, 240 Jefferson Ave.

Ready Made Gas for Automobiles

"Prest-O-Lite"

Light Without Work, Waiting or Danger

IF YOU try to make gas for your auto lights in the old way, with a generator, you must have patience and wait—you must make up your mind to fix carbide, get water, blow out pipes, clean burners and do a lot of other disagreeable things.

There is one way to escape the difficulties, however—and only one. All the labor, uncertainty and danger of the old-fashioned way can be avoided by getting gas ready for use—generated in advance. That's exactly what Prest-O-Lite gas is—pre-generated acetylene gas, of very high illuminating power, condensed for convenient carrying, and compressed to give even pressure for steady, non-flickering, always reliable, always brilliant light.

There is no labor for the user. You simply turn the gas on and light it when you want it, just as you do the city gas in your home.

When a tank is empty, it can be replaced with a full one for the cost of recharging. Send for our book "Ready-Made Gas for Auto Lights."

We will send you a copy, postpaid, by return mail, with our compliments, for your name and address in a letter or on a post card. Write today, to



THE PREST-O-LITE CO.

Dept. 55, Indianapolis, Ind.

Over 400 Supply Stations — one in every important city in the United States. Ask for a list of them.

CONTINENTAL

HORSE SENSE



If you overload a horse he will soon tire out. If you keep on overloading him he will soon die. What then is the remedy? Either lighten the load or get two horses.

Has it ever occurred to you that the same thing happens to your tires? Buy the **BEST** like "CONTINENTAL" and see that you get the right size in proportion to the load.

CONTINENTAL CAOUTCHOUC COMPANY,

W. TISCHBEIN, Pres.

43 Warren Street, New York.
Factory: Hanover, Germany.

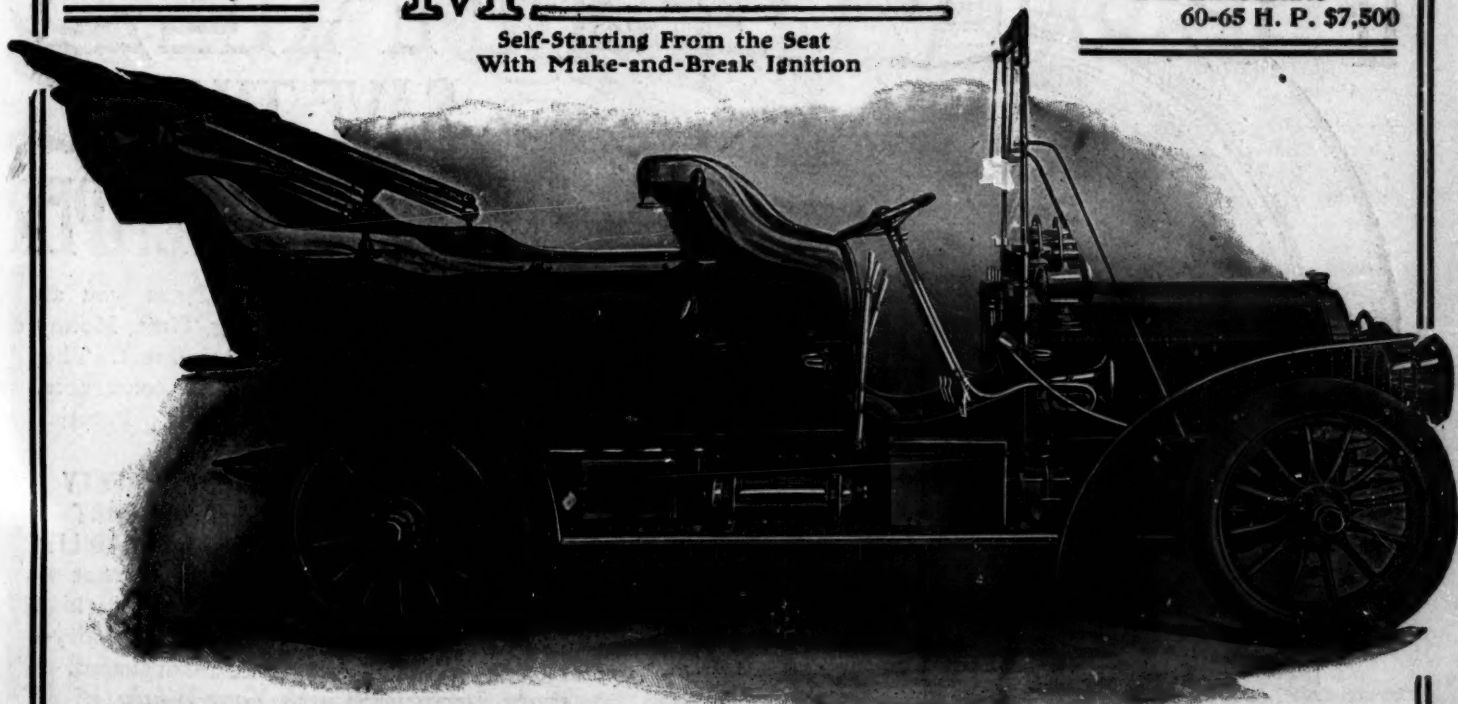
EMIL GROSSMAN, Gen. Mgr.

Our Quality and Construction insure Perfect Reliability.

"Matheson"

Self-Starting From the Seat
With Make-and-Break Ignition

40-45 H. P. \$6,000
Touring Cars
and Limousines
60-65 H. P. \$7,500

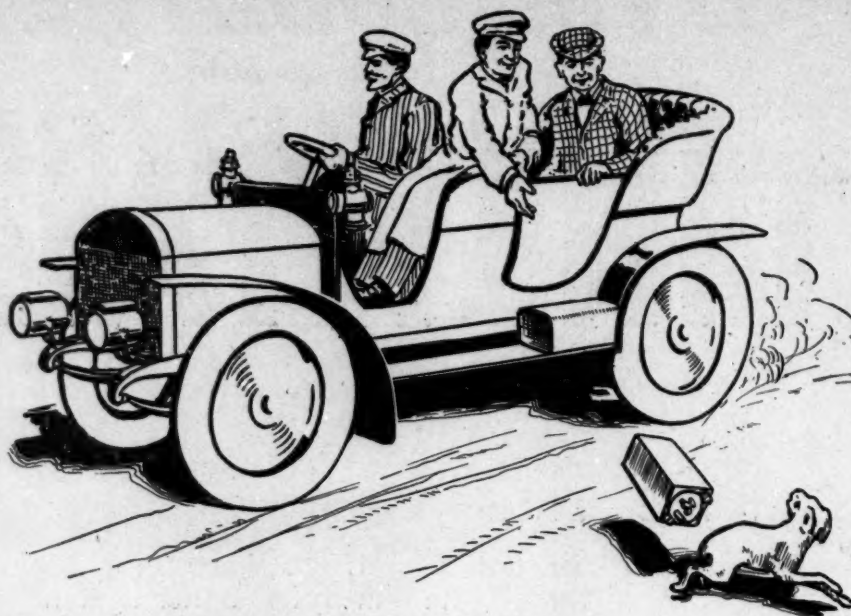


WRITE TODAY FOR
COMPLETE CATALOGUE

|| The Matheson Company of New York, 1619 Broadway ||
FACTORY, WILKES-BARRE, PA.

LICENSED UNDER
SELDEN PATENT

When writing to advertisers, please mention Motor Age.



YES! Throw Away That Unreliable GENERATOR

But you don't have to pay twice the price of a generator, and ten prices for gas forever after, to get a light that you can depend on.

The Rushmore Shaking Grate Generator delivers gas when you want it and as you want it, at precisely the right pressure for the burners, whether a few or many are lighted. And it does this automatically—without adjustment, without overheating, without after-generation or any of the tricks of other generators.

Moreover, you don't have to trust a sticking pressure gauge to tell you whether you have gas or not, and you don't have to throw away the last of your gas to be sure of not being caught empty handed. The Rushmore Generator gives the most dependable gas system ever put on an automobile.

Commercial lump carbide used. The gas costs from one to two cents per cubic foot.

Rushmore Dynamo Works, Plainfield, N. J.

Chicago Branch, 1328 Michigan Avenue

Sold by all first-class dealers

FISK TIRES

SAVE TIME, MONEY AND TEMPER

WITHOUT FISK TIRES you are simply wasting Time, Money, Temper,—and Comfort. They are the only tires constructed on Strictly Scientific and Practical Principles.

Positive Locking Device, insuring SAFETY
All Air Above the Rim, affording COMFORT
Superiority of Quality, guaranteeing DURABILITY

Our production for '06 is the finest that we have ever offered, representing, not merely high-grade exterior evidences, but Honest Quality—"Fisk Quality" that is at present unsurpassed.

*Truly, 'twill be Worth Your While
To Buy Fisk Tires.*

We should like to send you a little printed article on tires

**THE FISK RUBBER CO.,
Chicopee Falls, Mass.**

When Writing to Advertisers, Please Mention Motor Age.

**This is the
way you
take it
off**



The GOODYEAR **Detachable** **AUTO-TIRE**

ON
Universal Rim

**Removes that ever-present
terror of Punctures. You
or anyone can remove a
tire and put it back in 60
seconds by the watch**

No Tools but the Hands

**Come to the Factory or spend a few minutes at any of the following
Branch Stores, and see how easy it is done by doing it yourself**

Boston, 261 Dartmouth St.
New York, cor. Sixty-fourth
St. and Broadway.

Chicago, 82-84 Michigan Ave.
Cincinnati, 242 E. Fifth St.
St. Louis, 712-714 Morgan St.

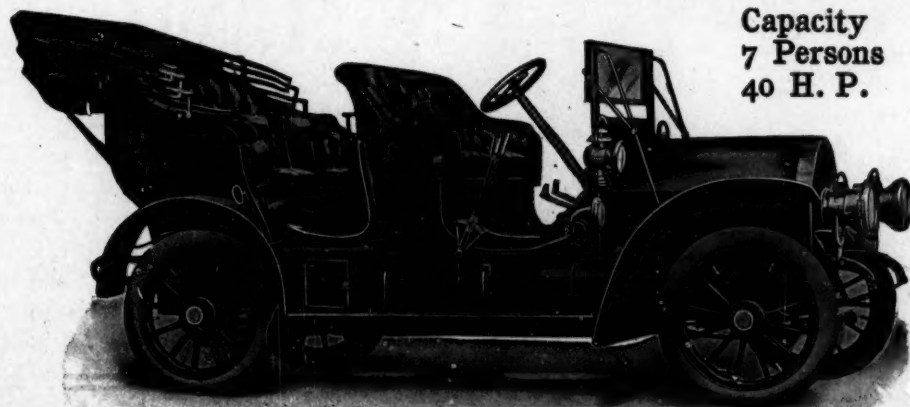
Los Angeles, 932 So. Main St.
Oakland, Geo. P. Moore & Co.,
377 10th St.

Buffalo, 719 Main St.
Denver, 220 Sixteenth St.
Detroit, 242 Jefferson Ave.

The Goodyear Tire and Rubber Co., Wallace Street, Akron, O.

KNOX WATERLESS TOURING CAR

Makes a World's Record



**Capacity
7 Persons
40 H. P.**

New York to Bos-
ton and return—503
miles. Seven pas-
sengers and 300
pounds baggage in
19 hrs. 53 mins.
Making the run with-
out a stop.

Highest Powered Air-Cooled Car in the World

KNOX AUTOMOBILE COMPANY **SPRINGFIELD,**
... MASS. ...

Members A. L. A. M.

Comments from Prominent Automobile Builders

No. 5

HARTFORD, CT.

We believed when we ordered your Roller Bearings that they were USED the best roller bearings to be had on the market. We have applied them to our product today and as the bearings have given us no trouble YEAR whatever we have seen no reason to question their quality.

POPE MFG. CO.

We guarantee them against defective material or workmanship for two years. We could not do this if they were not right.



TIMKEN ROLLER BEARINGS

Illustrated Catalogue of front and rear automobile axles and parts, mailed on application.

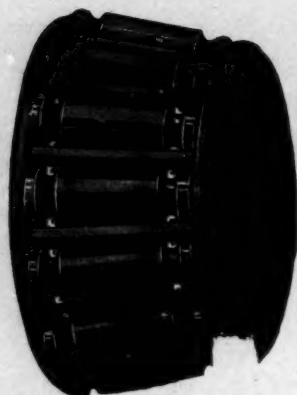
TIMKEN
Roller Bearing
Axle Company
Canton, O., U. S. A.

Manufacturers of
Timken Roller Bearing
Axles for Automobiles,
Motors, Etc.

New York Branch, 219 West
46th St.; Chicago Branch,
389 Wabash Ave.; St. Louis
Branch, 1215 N. Broadway.



CONE



CONE WITH ROLLERS



CUP

THE RATIONAL TIRE THE HEALY LEATHER TIRE

"The best of everything in the best place"

Has produced an unequalled tire for service—the most exacting kind

These copper rivets fasten tread to tire, and allow free movement of the tread.

It
Will
Pay
You

These steel rivets
take the wear and
prevent skidding.

COPPER RIVET
STEEL RIVET

LEATHER
COVER
RUBBER
SHOE

LEATHER
TREAD
LEATHER
LINING

This leather lining
to tread prevents
heat from entering
the tire and the riv-
ets from cutting tire.

To
Study
This
Cut

This leather cover
goes all round tire
and prevents rim-
cutting and blow-
outs.

LEATHER
COVER

FABRIC

STEEL RIM

This fabric rein-
forces tire from
within.

SECTION OF CLINCHER TIRE LEATHERIZED

This may be any make of rubber shoe or tire and covered with a **HEALY LEATHER TIRE COVER**

Every contingency affecting Durability, Reliability and Economy has been met by this construction

We have much more
to say. Let us tell
it to you.

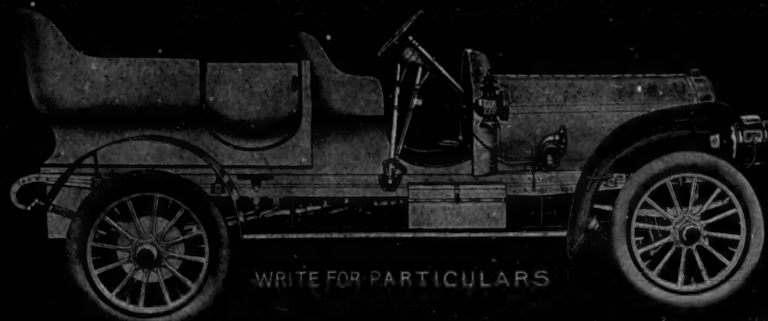
HEALY LEATHER TIRE CO. HEALY BLDG. 88-90 Gold St., New York

National

WORLD'S RECORDS

For 1,000 miles and 1,094³/₁₆ miles in 24 hours

Made Nov. 17, 1905 STILL STAND UNEQUALLED



Proving
National
Superiority

WRITE FOR PARTICULARS

4 Cyl. 35 H.P. - \$3,000

6 Cyl. 50 H.P. \$4,000

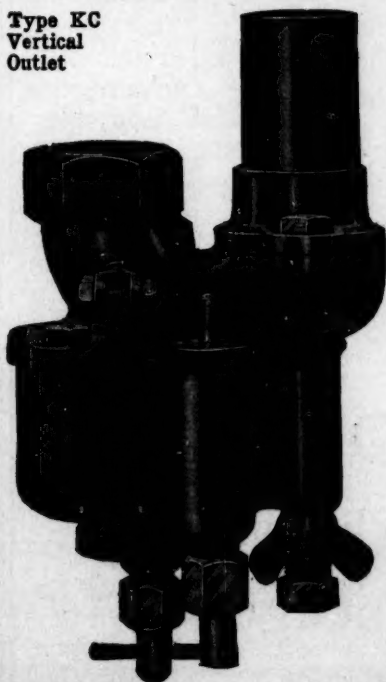
NATIONAL MOTOR VEHICLE CO.

MEMBER AMERICAN MOTOR CAR MANUFACTURERS ASSOCIATION, CHICAGO.

1006 E. 22d Street
INDIANAPOLIS, IND.

KINGSTON

Type KC
Vertical
Outlet



CARBURETORS

FOUR DIFFERENT TYPES...FOUR DIFFERENT PRINCIPLES

SPARK COILS PLAIN COILS DASH COILS

Circulating Pumps Switches Timers Steering Wheels, Etc.

Made by the largest Automobile Accessory Manufacturers in the World. Send for Price Lists and Special Descriptive Catalogue of our entire line.

OVER 33,000 KINGSTON CARBURETORS NOW IN USE

SEND FOR CATALOGUE

BYRNE, KINGSTON & CO.

KOKOMO, INDIANA, U. S. A.

Pacific Coast Branch—105 Front St., San Francisco, Cal. Canada—John Millen & Sons, Toronto and Montreal

The KINGSTON line is sold by leading dealers and jobbers throughout the United States

When writing to advertisers, please Mention Motor Age.

THE MODEL F

Cleveland

30-35 Horsepower

5 to 55 Miles per Hour on Third Speed

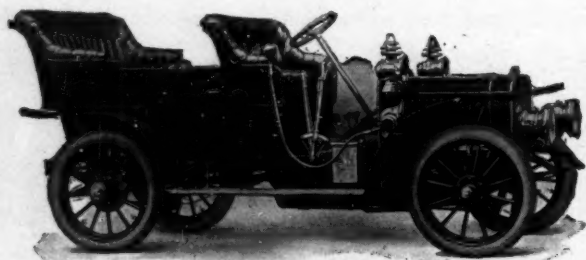
THE PRACTICAL CAR

The CLEVELAND is not made to exploit some particular mechanical point. It is put together piece by piece with the sole idea of giving unfailing service all the time.

There are no larger builders of automobile parts in this country than the GARFORD COMPANY. Yet they experimented for years before they put the CLEVELAND car on the market. They have built machines for others from the early days when there was more automobile experimenting than knowledge. But not until they knew they had a perfect part for every place was the CLEVELAND produced. Its performances since have justified the wait. In every part of the country—on good, bad and very bad roads CLEVELAND Cars have reduced the average of repair cost to the minimum.

Do you wonder that the enthusiastic motorists who have benefited are willing to tell you just how they increased their pleasures and decreased their expenses by driving a CLEVELAND—the practical car?

Write us for particulars.



Showing the Cleveland Model F, Equipped with the Double Tulp Body. Price, \$3,500

SPECIFICATIONS

4-cylinder 30-35 H. P.
Imported Simms-Bosch magneto
automatic make and break spark
Direct drive, nickel steel I-beam
front axle.
34 x 4 inch wheels, ball bearings.

Wheel base 104 inches.
Simplest control 5 to 55 miles on
high gear.
Absolutely noiseless.
Body, option, Victoria or Tulp, as
illustrated.

Price \$3,500 to \$5,000

depending on body equipment. Guaranteed for one year. (Catalogue and full information on request.)

CLEVELAND MOTOR CAR CO.

Department 5, CLEVELAND, OHIO

New York—E. B. GALLAHER, 228-30 W. 58th Street
General Eastern Distributing Agent

BOSTON—Butler Motor Co., 998 Boylston St.
PHILADELPHIA—Diamond Motor Car Co., 2117-20 N. Broad St.
PITTSBURG—Colonial Automobile Co.
BUFFALO—Cleveland Cycle and Auto Co., 649 Main St.
CHICAGO—Casidy-Fairbanks Co., 1413 Michigan Ave.
ST. LOUIS—St. Louis Automobile Co., 3635 Olive St.
SO. CALIFORNIA—A. P. Worthington, 4th & Los Angeles St., Los Angeles, California.
NO. CALIFORNIA—J. W. Leavitt & Co., 309 Larkin St., San Francisco, California.
KANSAS CITY, MO.—O'Beirne & Co., 1737 Grand St.

**FREE
THIS
BOOK**

To anyone who will send us two subscriptions to MOTOR AGE (new or renewals), with a remittance of four dollars.

This Book teaches thoroughly all you need to know about the mechanism, driving and care of Automobiles 450 diagrams Handsomely bound and sells for two dollars a copy—but FREE to anyone who will comply with above offer.

**MOTOR AGE**

appears each week and each issue is brimful of interesting matter pertaining to the Automobile Industry and other events Yearly Subscription Price—TWO DOLLARS

Address

Motor Age
309 Michigan Ave.
Chicago

C. H. DEERE, Pres.

W. E. CLARK, V. P.

C. F. DRURY, Mgr.



LIGHT
RUNNING

SIMPLE
CONTROL

19 "TYPE A" 06

For a car of quality, style, mechanical perfection and
"A car that is bound to please" select a "Deere"

Price \$2000

DEERE-CLARK MOTOR CAR CO., Moline, Ill.

Write for Catalog



WHY IS THE ROYAL TOURIST FAMOUS?

Ask an owner

ROYAL

Model G \$3,500 40 H. P.

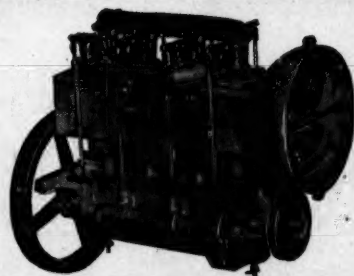
THE ROYAL MOTOR CAR CO.
CLEVELAND, OHIO

AGENTS

G. A. Duerr & Co., New York, N. Y.; G. J. Dunham, Boston; The McDuffee Automobile Co., Chicago; G. W. Caplin, Minneapolis; Automobile Supply Co., Ltd., Toronto; Motor Shop, Philadelphia; Rayburn Motor Car Co., St. Louis; Standard Automobile Co., Pittsburg; Amos-Pierce Auto Co., Syracuse; Schoeffel Co., Rochester; Royal Motor Car Agency, San Francisco.
Member A. L. A. M.

WE HAVE IT

Absolutely Tested
by all kinds of Herculean Work
Positively Proved
by six months of faultless performance



Cylinders surrounded by Hood with Fan Connection on outer end, blowing a
Continuous Hurricane of Cold Air Around and Over Top of Cylinders
Write for Descriptive Particulars

TREBERT

AIR COOLED VERTICAL MOTOR

THE DETAILS

15 H. P., developed at 1500 revolutions.
Bore and stroke, $3\frac{1}{2} \times 4$ inches.
Length of Motor over all, 29 inches.
Crank Shaft diameter, $1\frac{1}{4}$ inches.
Total bearing surface on Crank Shaft $10\frac{1}{4}$ ins.
Bearing on Connecting Rods, $2\frac{1}{4} \times \frac{1}{4}$ inches.
Bearing on Wrist Pin, $1\frac{1}{2} \times 1\frac{1}{4}$ inches.
Connecting Rods of drop forgings with phosphor bronze Crank Shaft.
Base and Crank Case of Aluminum.

Width of Motor from end of arm to end of arm, $19\frac{1}{4}$ inches.
Center of Crank Shaft to bottom of Motor, $4\frac{1}{4}$ inches.
Center of Crank Shaft to top of Motor, 18 inches.
Total Height of Motor from bottom of Crank Case to top of Exhaust Pipe, 22 inches.
Total Weight, 225 lbs.
Lubrication by Splash Feed and constant level automatic lubricator.

TREBERT GAS ENGINE CO.

Both Air and Water-Cooled Motors for Marine and Automobile Purposes
Builders of Transmissions and Clutches. Light Powered Cars Rebuilt

REFERENCE: JOHN WATMAKER, NEW YORK

180 WEST MAIN STREET, ROCHESTER, N. Y.



Gale Model E, \$1,250

Complete with lamps, horn, tools and choice of any standard $3\frac{1}{4}$ -in. tire.



Gale Model C, \$600

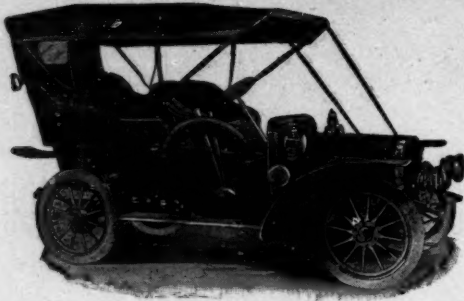
Complete with lamps, horn, tools and choice of any standard 3-in. tire.

Send for catalogue of our many other models

The Western Tool Works

118-130 Prairie Street, Galesburg, Ill., U. S. A.

Aerocar



Model A, 1906—24 h. p., four cylinder, air cooled. Delivered promptly complete in every detail of equipment as shown in illustration, including Standard extension black top. Two gas headlights. Full oil lamp equipment. Prest-o-Lite tank. Hartford shock absorbers. Gabriel horn. Speedometer. Extra tire and inner tube in waterproof case with attaching irons. Robe-rail and foot-rest in Tonneau. Tool box with full equipment on running board.

For \$2,800 f. o. b. Detroit

Price with Lamp Equipment \$2,500

The motor car of **greatest flexibility**—awarded First Prize for flexibility at the Open Air Show and Carnival at the Empire City Track, New York, May 24, 1906, and there were sixty contestants.



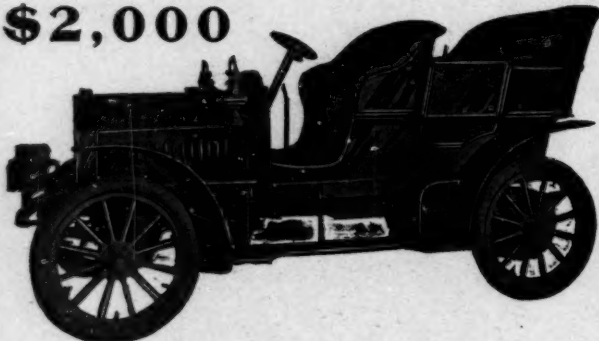
The Aerocar Co., Detroit, Mich., U.S.A.

Members American Motor Car Manufacturers' Association.

Phonograph not needed to exploit
the merits of the

1906 CRAWFORD TOURING CAR

\$2,000



Here it is, it speaks for itself. Four-cylinder motor; 24-28 horsepower; carries five passengers; selective type of speed change gear. Speed—36 miles approximate maximum.

CORRESPONDENCE SOLICITED.

Boston Automobile Exchange, Boston, Mass.
North Philadelphia Automobile Station, Philadelphia, Pa.
C. F. Warner & Co., Chicago, Ill.
Woodward & Lothrop, Springfield, Mass.
Charles W. Buckley, Worcester, Mass.
George W. Bender, Waynesboro, Pa.
William H. Ennis, Cumberland, Md.

The New Amsterdam Co., 113 W. 53d St., New York City, are our
distributing agents for New York and vicinity..

CRAWFORD AUTOMOBILE CO., HAGERSTOWN, MD.



EXPERT OPINION

After long and thorough competitive tests, over thirty makers of automobiles have adopted NON-FLUID OILS and are recommending them to their customers and agents.

The expert in lubricants has been quick to recognize the advantages of Non-Fluid Oils over fluid oils and greases.

Do you need further proof of their value? Then write us for our booklets and samples and judge for yourself.

SAMPLES FREE

Originators and sole makers of Non-Fluid Oils

New York & New Jersey Lubricant Co.
Dept. E. 14-16 Church Street New York City

LAMPS

Quality
Right



SAXON

Light
Right

ON

Price
Right

GET OUR CATALOGUE—VERY SPECIAL PRICE TO DEALERS AND JOBBERS.

MANHATTAN LAMP WORKS

526-532 W. 28th St. :: :: New York

THE JEWELL

A Perfect Car For \$400

8 H. P. Gasoline



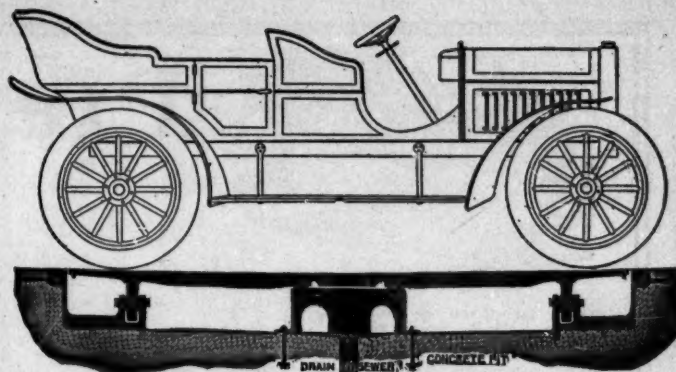
We say—climbs all grades—goes through mud and sand—simple in construction—elegant in appearance—perfect in control—economical to maintain.

A customer writes: "I finished my trip yesterday forenoon, making about 200 miles over the worst roads I ever saw. I had hills, mud and sand, with about 50 miles of decent roads. The little car came through it all in good shape and better than any large car could possibly do, over the roads I came. I was out one-half day on account of rain. It had rained all night and forenoon, but I started as soon as it quit."

This trip was made by a purchaser who took his car from our factory May 29 at 4 p. m., never having driven THE JEWELL before, and the letter was dated June 1.

Rain would not have stopped him had he had a top. All JEWELL RUNABOUTS are ironed for tops and we furnish tops for \$25. Send for catalog.

The Forest City Motor Car Co., MASSILLON, OHIO, - U. S. A.



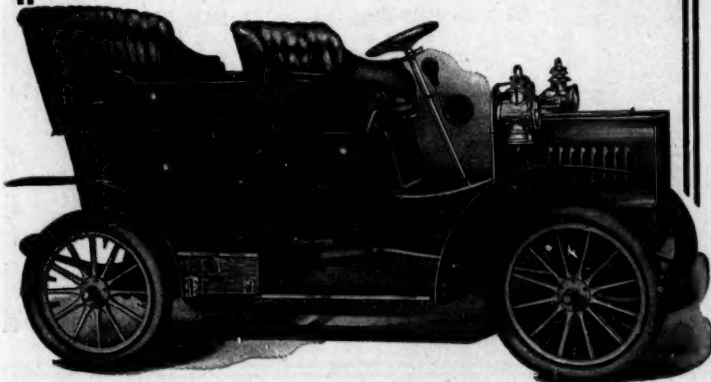
THE AUTOMOBILE WASHSTAND-TURNTABLE

PATENT APPLIED FOR

It facilitates the handling of cars in limited quarters, increases the capacity of a garage and avoids the danger of accident incident to backing in or out, when the approach is difficult. It is made of Cast Iron, has ball-bearings and is absolutely fireproof.

Manufactured only by the
Link-Belt Machinery Co., Chicago

MOLINE



16 Horse Power. Model G. \$1000.

Double cylinder opposed motor 4 1/4 inch bore, 5 inch stroke, pistons, rings and cylinders all ground to exact size. Each piston fitted with four rings, vertical tube radiator, large water pump, liberal water jackets. Hill precision mechanical oil-r. Splitorf double coil. Ball bearing timer. Schebler carburetor. Three point spring suspension with full elliptic springs at the rear.

EASY RIDING. FAST ENOUGH. PLENTY OF POWER

18-20 Horse Power. Model "C" \$1750

30-35 Horse Power. Model "A" \$2500

Both of these cars have Four Cylinder Vertical Motors. The two cars are alike except in size. Interesting features are: Ground surfaces in the cylinder. Four piston rings. Mechanical Hill precision oiler. Schebler carburetor. Vesta storage battery.

ILLUSTRATED CATALOGUE ON REQUEST.

MOLINE AUTOMOBILE CO., East Moline, Ill.

A REVELATION

For Water-Cooled Cars

Lightness

Many Automobile manufacturers have given up trying to use two cycle motors, not being able to keep them cool with the ordinary well known radiators. Our radiator was invented and perfected owing to this difficulty. It does the work of keeping two-cycle engines with multiple cylinders, exploding at the rate of 5,000 per minute, perfectly cool. To keep four-cycle motors cool, is therefore easy, with half the number of explosions.



Arctic Radiators
American Patent, 366,881, 1905.
British Patent, 17,172, 1905.
French Patent, 556,698, 1905.

Perfection

No Radiator More Handsome than

"ARCTIC" RADIATORS

NOTHING ELSE ONE-QUARTER AS STRONG

Not Dependent on Solder

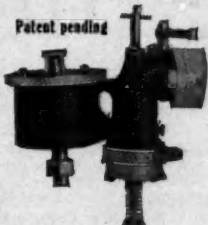
175 PER CENT MORE RADIATING SURFACE

SUPREMUS

"BEST ON EARTH"

Compares in efficiency, durability and workmanship with any carburetor in the world.

Patented needle valve construction, cutting gasoline to practically a fog.



"Lungs of the Motor"

Adjustable to all variations of temperature, road and load without stopping motor, producing perfect control at all times.

Auxiliary air swept to atomizer in unison with main air.

Absolutely Guaranteed

MOTOR COMPONENTS MFG. CO. - DES MOINES, IOWA

WRITE FOR ILLUSTRATED CATALOGUE



Above cut shows our Model A-4, 14 H. P. Twin Cylinder Light Touring Car, the best in the world for the money.

NEW ENGLAND AGENTS: Butler Motor Car Co., 998 Boylston St., Boston, Mass.

NEW YORK AGENTS: Gantert & Paul, 60-62 West 116th St., New York City.

Pierce = Racine

FOUR MODELS

Model A-3	12 h. p. twin cylinder Runabout	\$ 750
Model B-2	16 h. p. twin cylinder light Touring Car	1,150
Model A-4	14 h. p. twin cylinder light Touring Car	850
Model C	24 h. p. four cylinder Touring Car	1,750

Send for Printed Matter

PIERCE ENGINE CO., 1952 Clark St., Racine, Wisconsin

Abell Speedometer and Odometer Complete

Accurate, Efficient and Reliable. Universal Connections.
Fit any Car. Flexible Shaft. Our Own Make.



Much stronger and more durable than anything heretofore produced.

Quick Shipments

Price \$50

FULLY
GUARANTEED
FOR ONE
YEAR

E. T. Kimball Co., Manufacturers

1779 Broadway, New York—Motor Mart, Boston, Mass.

K. FRANKLIN PETERSON, Selling Agent Middle West
166 LAKE ST., CHICAGO, ILL.

SIBLEY & PITMAN, New York, New Jersey and Pennsylvania
26 WARREN ST., NEW YORK

The Busiest Automobile Establishment in America. Low Prices
the business getter

The Builder, Assembler
Dealer and Repairer
appreciate
"A GOOD THING"

Write for catalogue and
New Discount Sheet

Neustadt Automobile & Supply Co.
826 to 830 South 18th Street :: ST. LOUIS, MO.

THE SPEEDOMETER OF THE SEASON OF 1906

"THE SPRINGFIELD" The Hit of the New York and Chicago Shows



This cut shows the instrument and all its fittings. It attaches to the dashboard by a jointed bracket, is driven by the gear shown, from either front wheel, by means of a double jacketed flexible shaft, the pinion bracket of which is universal and will fit to the steering knuckle arm of any American built car.

This instrument will tell HOW FAST you are going, HOW FAR on each trip and HOW MANY MILES your car goes the whole season. Its Dial is Self Luminous and can be read after dark. Its accuracy at every mile is guaranteed. It is designed and constructed for long service. Balanced motions, Hardened Steel Parts, Self Lubricating throughout, water and dust proof, at twice the price it could be no better. All material and workmanship are the best. It is sold at only a fair margin of profit. Price for any sized wheel with complete fittings:

50 Mile Combination Instrument.....	\$45.00	80 Mile Combination Instrument.....	\$55.00
50 Mile without Odometer.....	\$5.00	80 Mile without Odometer.....	45.00

Patented in United States October 10, 1905. Patented in Canada, England and Europe. Other patents pending.

Manufactured by THE R. H. SMITH MFG. CO.

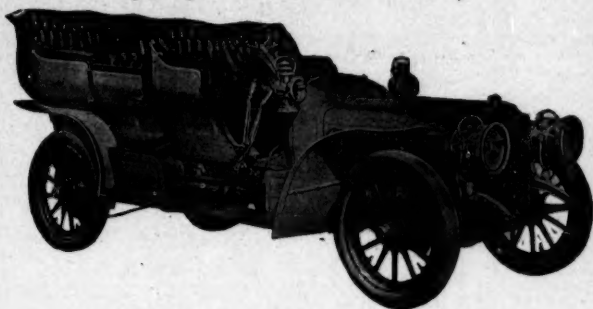
Electrotypes ready for Jobbers' '06 Catalogues

Established 1865

Incorporated 1883

SPRINGFIELD, MASS.

An International Union
has given to the world that triumph of
efficiency, speed and comfort,



The 50 H. P. Thomas Flyer
(\$3,500.00)

Co-operation of French engineering skill
of the first grade, with American tech-
nique, inventiveness and adaptability, has
produced this car in which every essen-
tial factor of high quality is present.

Study the Thomas booklet and analyze for yourself the founda-
tion upon which Thomas superiority has been built.

Ask for full Thomas literature today

THE THOMAS MOTOR CO.

1417 Niagara St., Buffalo, N. Y.

Members Association Licensed Automobile Manufacturers.

The LEA "Speedmeter"

works in the same way as the famous Lea
"Speedistimeter" and gives the same inform-
ation except the time of day.



**Tells speed
and distance**

but the clock has
been left out to suit
motorists who don't
want it.

Enclosed in water-
proof brass case, fig-
ures are read from seat and

accuracy is guaranteed

accuracy is guaranteed

Write for Booklet B and proposition to agents.

William S. Jones, 112 North Broad Street
Philadelphia

Sole Selling Agent for Motor Car Specialty Co.

**Franco-American
Auto and Supply Co.**

1404-1406 Michigan Ave., CHICAGO

Sole Selling Agents

**Look Spark
Storage
BATTERIES**

6, 8 and 10 Volt. 60 and 80 Amp.

Factory
Equipment

Guaranteed Deliveries



**THE BELL Compound
Pressure Indicating Pump**



**The
Foster
Shock
Brake**

is the best and most perfect device yet invented
for eliminating shocks to your automobile occa-
sioned by riding over rough places.

It takes away all the jar, prevents breakage
and adds to the life of the machine.

Most dealers carry them in stock. All
dealers should.

Write for particulars.

GABRIEL HORN MFG. CO.

976 Hamilton Street :: :: Cleveland, O.



BABCOCK
STANHOPE

Model 1. (Design patented) \$1680.

50 miles on one charge. Two or three occupants, 18 miles per hour, 2 1/4 H. P. motor; four full elliptic springs.

Babcock Electrics

Less current is required to propel Babcock Electrics than any other electric vehicle.

Every part, within and without, is so carefully fitted and so finely adjusted that it instantly responds to the touch of power.

¶ The substantial and simple construction, which make it possible to use more powerful batteries and motor, gives Babcock Electrics an increased speed of from two to six miles more per hour and a radius from ten to sixty miles greater than other electric vehicles.

Catalogue E and book of Babcock principles sent on request.

Babcock Electric Carriage Co., Buffalo, N. Y.

C. A. Benjamin, Secretary and Manager of Sales.

THE Pierce Arrow

IS a car whose final destination is neither the scrap heap nor the machine shop. There are probably more Pierce Arrows of old models now in satisfactory use than any other make of car. A Pierce car of several years back is a better investment than many 1906 cars.

If you are interested, we will send booklets and technical descriptions.

The George N. Pierce Company

BUFFALO, N. Y.

Members Association Licensed Automobile Manufacturers.

ANNOUNCEMENT!



"STANDARD ALLOY STEEL BALLS" made of ALLOY STEEL. DOUBLE CRUSHING STRENGTH ORDINARY BALLS. 3/4-in. Crucible Steel Balls crushing strength 50,000 to 56,000 lbs. 3/4-in. "Standard Alloy" steel balls, 95,000 to 100,000 lbs. Guaranteed true to .0001-in. in diameter and sphericity. Prices quoted on request.

Standard Roller Bearing Co.

48th and Girard Avenue, - - PHILADELPHIA

TEEL

Tire
Cases

Tire
Irons



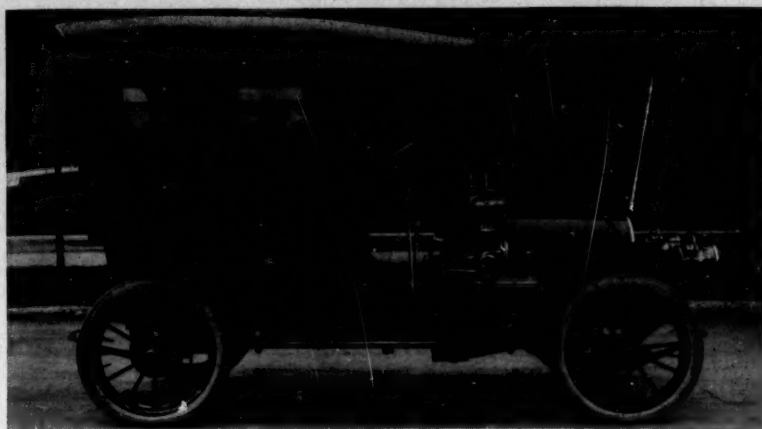
Trunk
Racks

Auto
Tops

The Teel Tire Case is a Waterproof and Dirtproof Tire Cover, held in place by two steel wire hoops, doing entirely away with lacing. It is the easiest to attach and the most convenient cover on the market. We hold the patent for the retaining hoop in the tire covering.

Send for Catalogue of Illustrations
and Complete Description Address

TEEL MFG. CO. .. Medford, Mass.



NEVER MIND THE CAR,—LOOK AT THAT TOP

¶ Note the perfect fit—The stylish outlines—The rigid appearance. You might look the entire world over and nowhere find the equal of our tops. We want you to write us regarding styles and prices. We know we have the best equipped top plant in the U. S. and we guarantee you absolute satisfaction in every detail. Our capacity is large and we can ship without delay. Get in touch with us. We want your business and if quality counts—you want our tops.

Black Pantasote, strap top, celluloid divided lights, bows of 2nd growth ash, special strength leather covered curved sockets.

SEND FOR SAMPLES OF MATERIALS AND NEW CATALOGUE

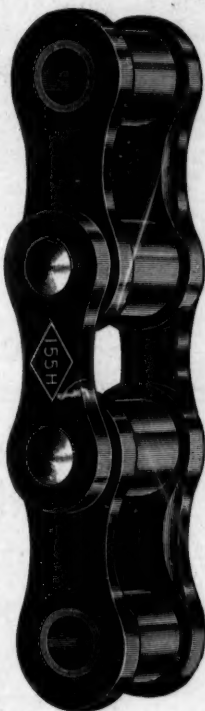
MYERS AUTO TOP CO. DAYTON, OHIO
AUTOMOBILE TOPS OF EVERY DESCRIPTION

A SUGGESTION

Prove for Yourself
that "Diamond" Chains
Are Superior.

Keep a record of your mileage, the chains clean, well oiled and properly adjusted; then compare your record with that of the "other fellow."

You will appreciate what it means to have high carbon stock and Nickel Steel Rivets; and that chains are superior to gears, will last longer, cost less, consume much less power and lengthen the life of your engine.

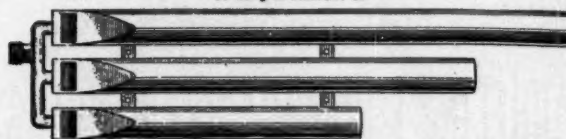


DIAMOND CHAIN & MFG. CO.
220 W. Ga. Street INDIANAPOLIS, IND.

"SKIDDOW" FOR THE PATENT BUGABOO!

OTHERS WARN--WE PROTECT

While others may issue warnings, we issue guarantees of protection to all purchasers of



The Exhaust Horn

Price, \$12, including our new Air Regulator Valve

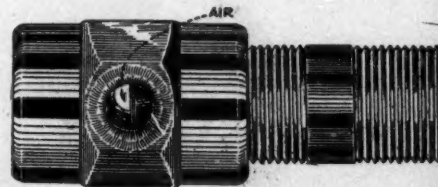
This horn licensed to attach under U. S. Patent No. 788,784, covering any horn blown by the exhaust from a gas engine. Look for patent number when you purchase. It's a guarantee of protection from litigation.

OUR POLICY: Full Protection to Purchasers, a Fair Price to All and Generous Discounts to the Trade

We also make the

**Air
Regulator
Valve**

Patent Applied For



Removes the discordant screech from any exhaust blown horn. FURNISHED WITHOUT EXTRA CHARGE ON THE EXHAUST HORN.

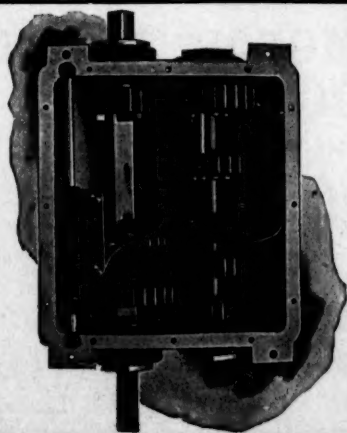
Price, ready for application to any other horn, \$5

Sold by enterprising dealers everywhere or direct by the makers.

New Jersey Tube Company Newark, N. J.

ESTABLISHED 1894

CAPITAL, \$500,000



BROWN-LIPE GEARS

IRREVERSIBLE STEERING
BEVEL AND CHAIN DRIVE DIFFERENTIAL
MANY SIZES AND MODELS
SLIDING GEAR TRANSMISSION

K. FRANKLIN PETERSON, 166 Lake St., Chicago, { Direct Factory Salesmen.
THOS. J. WETZEL, 11 Warren St., New York, {
CHAS. E. MILLER, 97 Reade St., New York, Sales Agent Carrying Stock.
Branches in Philadelphia, Boston, Cleveland, Buffalo and Detroit.
POST & LESTER CO., Hartford, Conn., Eastern Sales Agents.

BROWN-LIPE GEAR CO.
200 South Geddes Street SYRACUSE, N. Y.

Michelin Tires

The Standard of the World

Faster, Stronger and carry more weight than any other tire made.

If you want the best and cheapest in the end buy Michelin.

If your car is equipped with Michelin Tires you will be free from tire trouble.

All sizes in stock and ready for immediate delivery.

MICHELIN TIRE AMERICAN AGENCY

Telephones $\begin{matrix} 760 \\ 761 \end{matrix}$ Madison Square

6 West 29th Street, :: :: NEW YORK



EXCELLO
GAS ENGINE CYLINDER OIL
(Light Bodied Oil)

Adapted to closely fitted pistons, and on account of its fluidity, desirable for cold weather.
Other Grades are:

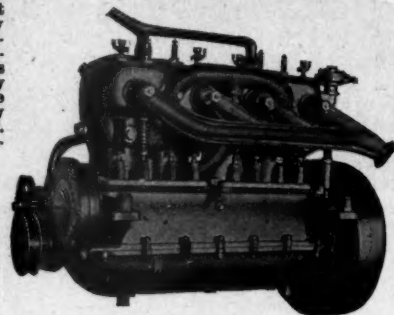
A. W. H. GAS ENGINE CYLINDER OIL	medium bodied
SUPER GAS ENGINE CYLINDER OIL	heavy bodied
S. H. STEAM CYLINDER OIL	for superheated steam
TRANS-COMPOUND	semi-solid oil
HARRIS MOTOR GREASE (for compression cups)	medium and heavy
HARRIS GRAPHITE GREASE	for gears and chains

A. W. HARRIS OIL CO.

325 S. WATER ST., PROVIDENCE, R. I.

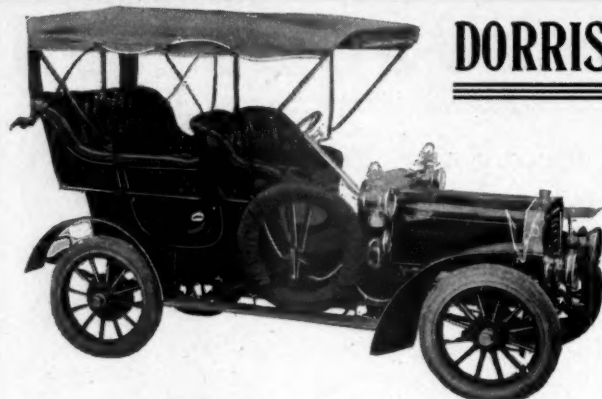
MERKEL MOTORS

can be relied upon when put to a severe test, because they are constructed upon principles that are mechanically correct and only the best materials enter into their makeup. They are guaranteed to satisfy the most critical, work perfectly and develop full rated H. P. Can be had in any of the following models:



Air cooled, 4 cylinder, vertical, $3\frac{1}{2} \times 3\frac{1}{2}$ in., 12-14 B. H. P.
Water cooled, 4 cylinder, vertical, $3\frac{1}{2} \times 3\frac{1}{2}$ in., 14-16 B.H.P.
Water cooled, 4 cylinder, vertical, $4 \times 4\frac{1}{2}$ in., 20-22 B. H. P.
Water cooled, 4 cylinder, vertical, $4\frac{1}{2} \times 5$ in., 35-40 B. H. P.

MERKEL MOTOR CO., 1097 26th Avenue, Milwaukee, Wis.



DORRIS

The Dorris Cars

ARE

Flexible Noiseless
Powerful Hill Climbers
Smooth City Runners
30 Horse Power, actual

Unexcelled for Durability Handsomely Finished

Price \$2500 With top, \$2625

DORRIS MOTOR CAR CO., St. Louis, Mo.

WESTERN MOTOR TRUCK AND VEHICLE WORKS

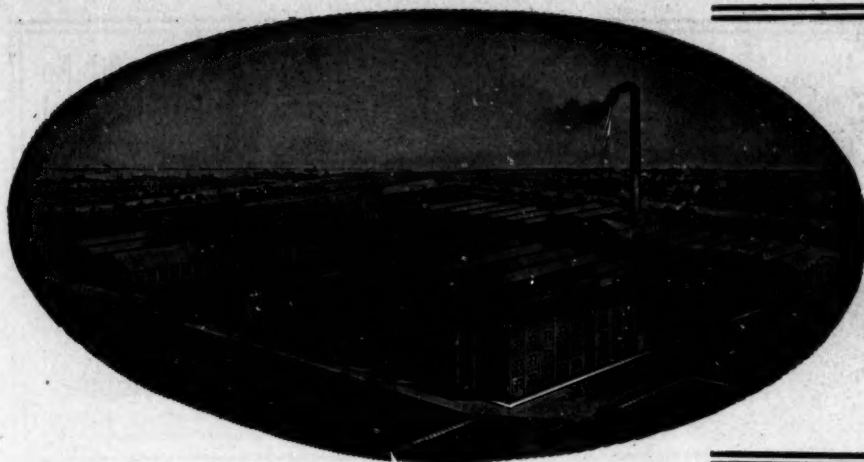
MANUFACTURING

BEEBE MOTOR CARS

WATS 2-CYCLE ENGINES
GIANT FRICTION TRANSMISSION

WRITE FOR PARTICULARS

477 Wabash Ave. CHICAGO, ILL.



The output of COMPLETE FRONT and REAR AUTOMOBILE AXLES of this plant exceeds the capacity of all competition combined.

THE AMERICAN BALL BEARING CO.

L. S. & M. S. Railway and Edgewater Park
CLEVELAND, OHIO, U. S. A.

SPICER Universal Joints

are fully covered by United States

PATENTS

No. 728779, Dated May 19, 1903
No. 768407, Dated Aug. 23, 1904
No. 806592, Dated Dec. 5, 1905

Others are pending, but the above-mentioned patents that have been granted fully cover both forms of all-metal casings used by us and place them in a class by themselves. The design, material and workmanship is up to the highest standard.

INFRINGERS will be prosecuted.



Spicer Universal Joint M'f'g. Co.

PLAINFIELD, N. J.

FACTORY REPRESENTATIVES:

K. Franklin Peterson, 166 Lake St., Chicago, Ill.
Thos. J. Wetzel, 11 Warren St., New York



Krupp Special Chrome Nickel Steel, Grade E. F. 60.0

Now in stock at New York, Round Bars $\frac{1}{2}$ inch to 8 inches in diameter, each about 10 feet long. This steel can be used unhardened having Min. Elastic Limit 95,000 lbs., Min. Tensile Strength 110,000 lbs., Elongation 16 per cent and Contraction 67 per cent, or can be used case hardened or hardened in oil to have more than double the above Elastic Limit and Tensile Strength.

WE MAKE GAS TANKS, TOO "AUTOGAS"

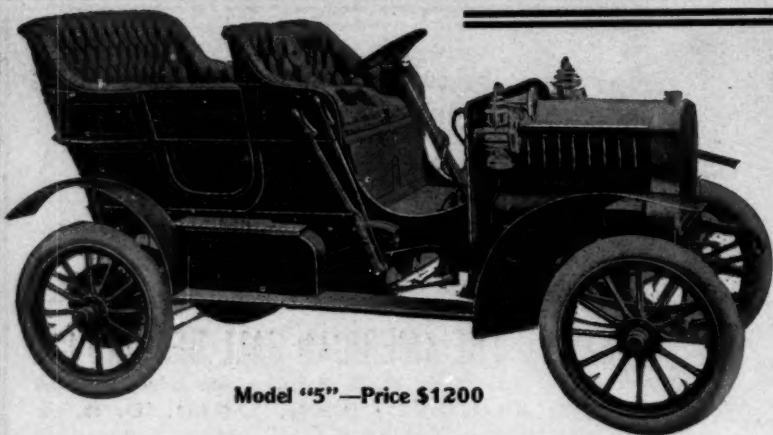
They are the best and strongest seamless steel. Filled by our new process with dissolved acetylene. The brightest light and longest service.

Refilled tanks promptly shipped.

Write for "Autogas"

Avery Portable Lighting Company MILWAUKEE, WIS.
EXCELSIOR SUPPLY CO., Chicago Agents





Model "5"—Price \$1200

THE LAMBERT

A Car with No
Fixed Speed

ANY SPEED YOU DESIRE

A Gearless Friction Drive Car

"SOLD ON A GUARANTEE"

SO MANY SUPERIOR FEATURES WE CAN'T DESCRIBE
THEM IN THIS LIMITED SPACE.

WRITE US FOR CATALOG

Lambert Pleasure Cars and Commercial Trucks range in price from
\$900 to \$3,000.
Dealer Agents wanted where we are not represented.

The Buckeye Manufacturing Company

ANDERSON, INDIANA, U. S. A.

Members American Motor Car Manufacturers' Association.

THE LARGEST AUTOMOBILE SUPPLY HOUSE IN AMERICA

MILLER'S
DIAMOND



Vulcanizing Substitute



Will put on
patches that will
not come off and
cannot be pulled
off.

TOURIST KIT. For tourists we furnish a kit packed in
a wooden box with sliding top, ¼ pint each Cement and
Acid Cure, a piece of emery cloth and two brushes for ap-
plying cement and acid. Price, each, \$1.00.

For Shop Use. We furnish this substitute in boxes con-
taining one pint each or one quart each, cement and acid
solution. Price, \$1.50 and \$2.75.

CHAS. E. MILLER

Manufacturer, Jobber, Exporter and Importer

Home Office, 97-99-101 Reade St., New York

BRANCHES

924 Eighth Ave. New York City.	318 & 320 No. Broad St. Philadelphia, Pa.	202 & 204 Columbus Ave. Boston, Mass.
406 Erie St. Cleveland, O.	227½ & 229 Jefferson Ave. Detroit, Mich.	824 Main St. Buffalo, N. Y.

"The Tube That Satisfies"



Why Continental Rubber Works Tubes
Give the Best Satisfaction:

1. Tubes are made from the oldest and most carefully selected Up River Fine Para.
2. Each tube is made with several distinct and separate layers of rubber (three in smaller sizes, and four in 3½ in. and larger), all vulcanized together, making a laminated tube of greatest possible strength.
3. Tubes are thicker, and on account of their special construction are tougher and more resilient than any other.
4. All tubes are specially reinforced at valve base with strips of sea island fabric and extra rubber strips to prevent valve stem from pulling out.
5. All splices are vulcanized and doubly reinforced.
6. Only most skilled and careful workmen used on this work, and each operation carefully inspected.
7. Each and every tube tested under heavy pressure before shipping to detect any defects or weakness.
8. All tubes packed in pasteboard boxes.

We will forward, for inspection, express charges prepaid, one or more tubes to any responsible Jobber, Dealer or Garage, subject to return at our expense, if not entirely satisfactory.

If your dealer does not handle
these tubes, write us

CONTINENTAL RUBBER WORKS
Department T. ERIE, PA.

Chicago Branch—1520 Marquette Bldg., 204 Dearborn St. Tele-
phones, Central 4031; Automatic 4031.

New York Branch—127 Duane St. Telephone, 2322 Franklin.



CAMBRIA FORGE CO.

Successors to HUSSEY DROP FORGE & MFG. CO.

MANUFACTURERS OF

Drop Forgings and Automobile Parts
Railroad Car and Engine Forgings

SEND BLUEPRINTS FOR ESTIMATES

JOHNSTOWN, PA. AND CLEVELAND, O.

Columbia

STILL WINNING!

At the meet of the Washington, D. C., Automobile Association, Saturday, June 16th, MARK XLVII, 40-45 H. P., fully equipped, driven by C. J. Hurst, won first prize in the five mile \$4,500 class race and second prize in the five mile free-for-all race, beating five other cars of prominence. MARK XLVI, 24-28 H. P., fully equipped, driven by E. C. Bald, won first prize in the five mile \$3,000 class race.

MARK XLVII, 40-45 H. P. \$4,500 to \$5,500
MARK XLVI, 24-28 H. P. \$3,000

Separate catalogues of Columbia Gasolene Cars, Electric Carriages and Electric Commercial Vehicles on request.

Made by **ELECTRIC VEHICLE COMPANY, Hartford, Conn.**

New York Branch: 134-136-138 West 39th St. Chicago Branch: 1332-1334 Michigan Ave. Boston: Columbia Motor Vehicle Co., Trinity Place and Stanhope St. Philadelphia: Pennsylvania Electric Vehicle Co., 250 N. Broad St. Washington: Washington E. V. Transportation Co., 15th St. and Ohio Ave.
Members Association Licensed Automobile Manufacturers.

THE COIL THAT DOES THE TRICK

In the Climb to the Clouds

Chas. Soules, driving a Pope-Toledo fully equipped Touring Car, made the ascent in 29:37 2-5. This is considered a most wonderful performance. Besides

SPLITDORF COILS

were winners in nearly every event.

Ask the Glidden Tourists how they like the Splitdorf Coil.

Seventy-five per cent of the cars on the tour were equipped with them.

HERE IS DR. PARKER'S LETTER:

June 24, 1905.

MR. C. F. SPLITDORF,

Dear Sir: I feel that in the recent 200 mile contest my success, in a large degree, was due to your coil. It seems to me that your latest is superior to anything in use to date. I tell my automobile friends to give me a SPLITDORF for reliability every time.

Very truly, C. B. PARKER.

167 Remsen St., Brooklyn, N. Y.

Winner of Recent Economy Test of Long Island Automobile Club

C. F. SPLITDORF 17-27 Vandewater St.
NEW YORK CITY

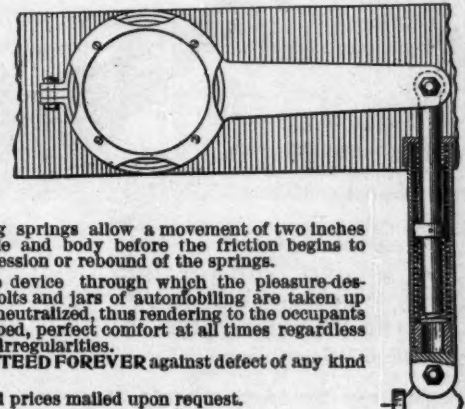
The Largest and Most Successful Coil Maker in the World

VESTAL

A Perfect Shock Absorber

should check in both directions when the shock is severe enough to make riding unpleasant; but it should *not* act on the springs under *ordinary* conditions, as that tends to "dead" the easy, flexible riding qualities of the springs. No friction is so durable and quiet in its action as that of the band brake type.

United States Patents Allowed
Foreign Patents Pending



The balancing springs allow a movement of two inches between the axle and body before the friction begins to check the compression or rebound of the springs.

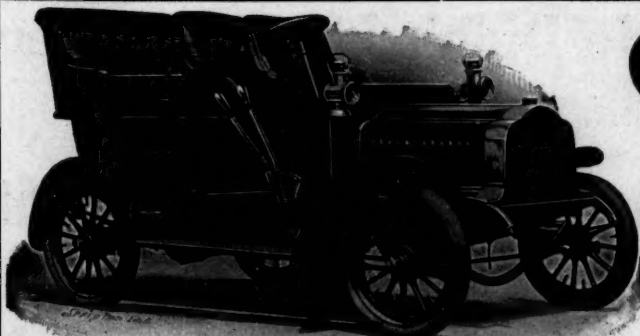
A dependable device through which the pleasure-destroying shocks, jolts and jars of automobilism are taken up and completely neutralized, thus rendering to the occupants of a car so equipped, perfect comfort at all times regardless of speed or road irregularities.

It is **GUARANTEED FOREVER** against defect of any kind or nature.

Literature and prices mailed upon request.

Vestal Shock Absorber Company

Baum and Whitfield Sts., East End, PITTSBURG, PA.



16 H. P. Light Touring Car, \$1,400

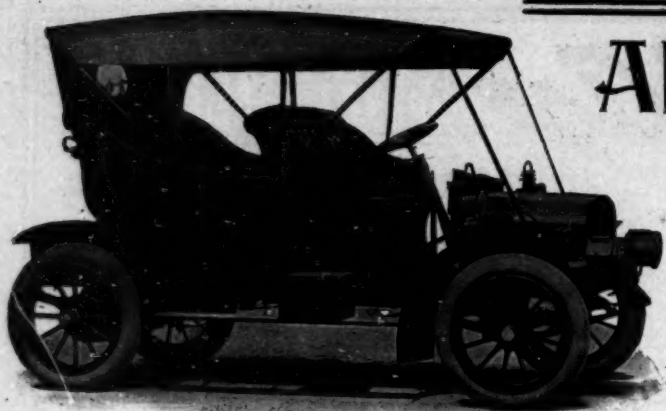
Compound MOTOR CARS

Mechanically Correct in Every Detail

Manufactured in one of the largest and finest equipped automobile plants in this country
Prompt Deliveries of all models Guaranteed

Catalogue sent on request

THE E. H. V. CO., MIDDLETOWN, CONN.



ADAMS-FARWELL

40-45 h. p. Five-cylinder Motor ... Air-cooled

Note rear seat is well forward of rear axle,
which is conducive to easy riding

\$3,000

NO WATER ... NO RADIATOR ... NO FAN
NO FLY-WHEEL ... NO MUFFLER
MOTOR CAN BE CRANKED FROM DRIVER'S SEAT

THE ADAMS COMPANY .: DUBUQUE, IOWA

Chicago Salesroom, 1536 Michigan Ave.

THE GEMMER STEERING GEAR

The Only Gear on the Market Perfectly Adjustable to Wear

A SINGLE ADJUSTMENT
TAKES UP WEAR ON ALL
OF THE BEARINGS. :: ::

AN OPPORTUNITY FOR THE MANU-
FACTURER TO IMPROVE HIS CAR. ::



AN OPPORTUNITY FOR THE
DEALER TO REPLACE DEFEC-
TIVE AND UNSATISFACTORY
GEARS

SAFE, STRONG, COMPACT, OIL
TIGHT, IRREVERSIBLE, EASY
TO OPERATE, QUADRANT
STATIONARY. :: ::

Write for Prices and Detailed Specifications. Pat. Applied For

Gemmer Engine Company, WABASH, IND.

SELLING AGENTS

Brandenburg Bros. & Alliger, 85 Lake St., Chicago and 103 Reade St., N. Y. City

Monogram Oil

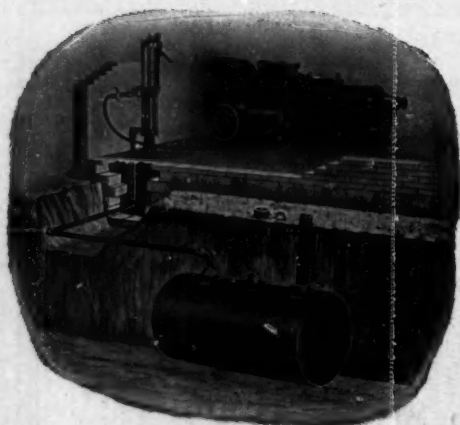
Is on Sale
From Maine to California

5000 SUPPLY HOUSES ASK FOR IT
CARRY IT IN STOCK

COLUMBIA LUBRICANTS CO. OF NEW YORK
78 BROAD STREET, NEW YORK, N. Y.

CHARRON
GIRARDOT
and VOIGT
C. G. V.
ENGLISH
DAIMLER
Licensed Importers under Selden Patents
BROADWAY AT 56th STREET

DECAUVILLE AUTOMOBILE CO.



Cut 41—The Standard Garage Equipment in Gasoline Storage

Because He Didn't Use a Bowser

When a Bowser Salesman called just after the purchase of a car, Mr. A—— vowed he didn't need a Bowser tank—he used only a little gasoline and his faucet tank was good enough. ¶ Three months later this tank caught fire, his stable burned and his car was destroyed—luckily no life was lost. He immediately ordered a

Bowser Long Distance Gasolene Outfit

then rebuilt his stables and when his new car came the Bowser was ready. ¶ He bought the Bowser for safety—he found it entirely so, in addition he secured for himself the maximum convenience, economy and cleanliness.

Have you a Bow-
ser? Write for
Catalogue XV

S. F. BOWSER & CO., Inc.
FORT WAYNE, INDIANA

Eastern Office
255 Atlantic Ave.
Boston, Mass.

The Standard American Cooler

THE WHITLOCK COOLER

Was used on the LOCOMOBILE RACER THAT FINISHED THIRD IN THE VANDERBILT CUP RACE. It was never touched during the race. IT DID ITS FULL duty. It held its water and kept the engine cool.

The Only Cellular Coolers Made in America

that were used in the 1905 and 1906 Vanderbilt Cup Races, also the 1906 Gordon Bennett Race. Quality and efficiency only figure in an event of this importance. We make coolers of the HIGHEST EFFICIENCY. The leading makers of automobiles have recognized this fact by adopting

THE WHITLOCK COOLERS

continuously for the seasons of 1903, 1904, 1905 and 1906.

THE WHITLOCK COIL PIPE CO.

Hartford, Conn.

AMERICAN Indestructible Sparking Plugs



Stand the test where all others are knocked out of business. Every one we sell brings us more business. This fact shows what they are. The Original and Only Double Insulated Pure Mica Core. All others are worthless imitations. Write for catalog showing our full line of coils, plugs, ammeters, switches, dynamos, etc.

AMERICAN COIL COMPANY

FOXBORO, MASS.

Pacific Coast Branch, 306 McAllister St., San Francisco

WILLARD SPARKING BATTERIES

HIGHEST CAPACITY-HOTTEST SPARK

MANUFACTURED BY

THE WILLARD STORAGE BATTERY CO. Cleveland O.

Of course, we make the Sprague Tops

Col. Sprague's New Folding Plate Glass Front

THE
SPRAGUE IDEA

MADE THE
SPRAGUE WAY

Practical, durable, handy, handsome, firm, finished.
Day or night it is what you want.
For frosty weather—for foggy nights.
You can see your way.
You can fold it down to let in the air.
You can fold it up to keep out the cold or bugs.
It is complete and practical—can't rattle or annoy you.
Send for catalogue.

The Sprague Umbrella Co., Norwalk, O.



The Glide
AUTOMOBILES

A Powerful, Modern,
Stylish Type of Car.

Model "E" 36 H. P. Glide Touring Car

Having Extra High Road Clearance. Very strong in construction, yet reduced to a minimum in weight.

THE GLIDES ARE HILL CLIMBERS

We want HUSTLING AGENTS where we are not represented. Write Us.

THE BARTHOLOMEW CO.

215 Glide Street,

PEORIA, ILL.

MOSLER "SPIT-FIRE" PLUGS

They ACTUALLY "SPIT-FIRE"

while others spark only

BASE

Facilitates Sparking. Makes Plugs Spit-Fire.
Acts as Condenser of Electricity.
Protects Insulation and Sparking Points.

STANDARD SIZE, \$1.50, Postpaid. SPECIAL, \$2.00.

With Patented Protector, \$.50 additional.

MOSLER TIMER

Positive
Circuit

Reliable
Ignition

GUARANTEED

Used by the Leading Manufacturers.
INSIST upon Name and Patent Dates.
BEWARE of Valueless Imitations.

THE MOSLER TIMER

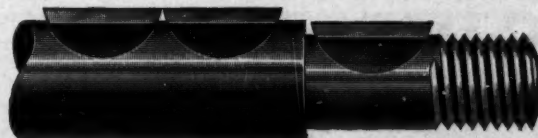
Is Constructed on a Scientific Basis.
WRITE FOR LIBERAL DISCOUNTS.

A. R. MOSLER 1679 Broadway
NEW YORK



Against claims made by competitors, we submit the following list of Motor Car Manufacturers using "Whitney" Roller Chains and Standards. Is it not time for everyone to admit that "Whitney" Standards for Roller Chain dimensions are now the American Standards?

"Adams-Farwell" "Adams Vehicle Co." "American Motor Truck" "Auto-Car Equipment" "Baker" "Berkshire" "Biddle-Murray" "Cadillac" "Columbia" "Champion (McCrea)" "Crawford" "Columbus Buggy Co." "Crown" "Elwell-Parker" "Ford" "Franklin" "Gaeth" "Gale" "Grout" "Hewitt" "The Holmes" "Iroquois Iron Works" "Knox" "Lambert" "Matheson" "Mack Brothers" "Mitchell" "Moline" "New York Truck" "Olds" "Packard" "Rambler" "Rapid" "Reo" "Stearns" "Thomas" "Tourist" "Wayne" "Western Motor Truck" "Windsor," Etc., Etc.



The Woodruff Patent System of Keying has been adopted by the leading manufacturers of Motor Cars, Machinery, etc. It is more mechanical, more efficient and also a great labor saving invention. We carry over 50 sizes of Keys and Cutters in stock for immediate delivery.

The Whitney Mfg. Co., Hartford, Conn.

Does Not Use Rubber Tires

4 WHEEL DRIVE

The Most Powerful Truck in the World

WRITE FOR DETAILS

Four Wheel Drive Wagon Co.
Milwaukee, Wis.

Drives Steers Brakes On all Four Wheels

POWER

Our gas generating tank makes a 40-H. P. Car of any ordinary 24-H. P. Car; puts it in the mile-a-minute class and then drives the car on half the quantity of gasoline formerly used. Besides, it absolutely prevents danger from fire or explosion. The cost? Less than a new set of tires.

WE WILL PROVE IT if you will WRITE US FOR FREE DESCRIPTIVE BOOKLET.

THE AMERICAN GENERATOR CO.
N. E. Cor. 63d St. & Park Ave., New York City

25 H. P. Vertical 16 H. P. Opposed High-Class Automobile Motors



**The
A. Streit
Machine
Co.**

**CINCINNATI
OHIO**



IT NEEDS NO INTRODUCTION

As the most reliable spark plug on the market, the JEWEL is well known to the trade.

To take it apart for cleaning purposes, simply rap the head of the coil on some solid surface which immediately releases it. The coil is as easily replaced. Made in all styles and threads, each plug is fully guaranteed.

PITTSFIELD SPARK COIL CO.
PITTSFIELD, MASS.

Excelsior Supply Co., Randolph St.,
Western Distributors

The "Reliable Dayton"



Built for city or country. Will travel any road with its 22-inch road clearance. Any speed up to 25 miles per hour. Two cylinder, double acting motor, 10-12 H. P. No valves, gears, cams, springs or cam shaft. So simple any one can run it and keep it running. Price complete with top, side curtains, storm front, lamps and full tool \$500.00 equipment.....

ADDRESS DEPARTMENT B.

Dayton & Mashey, 4515-4517 Evans Ave.
CHICAGO, ILL.

AUTOMOBILE TOP FABRICS

High Grade and Chase
Rubber and Leather.
Single & Double Texture
Top Goods.

Complete Assortment
of Fabrics, Colors and Grains

L. C. CHASE & CO.
NEW YORK BOSTON CHICAGO

SWINEHART TIRES

are being adopted by Automobile manufacturers. Several firms already furnish a written guarantee for one year with each of their pleasure vehicles equipped with Swinehart Tires.

**WE HAVE SOLVED
THE TIRE PROBLEM**

Write for Catalog B.

THE SWINEHART CLINCHER T. & R. CO.

Chicago, 1231 Michigan Ave.
Detroit, 239 Jefferson Ave.

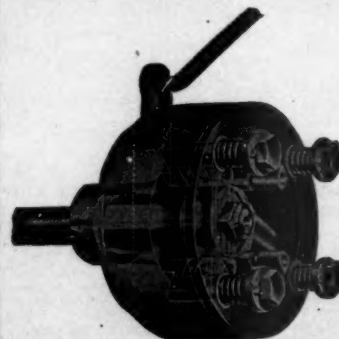
AKRON, OHIO

New York, 1843 Broadway
Buffalo, 898 Main St.



FIVE STANDARD CLINCHER RIMS

DON'T LET YOUR ENGINE SKIP



It isn't necessary, and you are not only losing power, but wasting gasoline. The Crouse-Hinds Double-Ball Contact Timer makes the contact by a hardened steel cam passing between two steel balls held together by coiled springs.

Write for Catalogue 57

CROUSE-HINDS CO., 222 Fayette St.,
SYRACUSE, N. Y., U. S. A.

"The Hoffecker" Speed and Mile Register



There Are None "Just as Good"
The Chauffeur can read it with sand in his eyes

In addition to giving the miles per hour it gives the miles per trip from 1 to 100 with an indicating hand that is easily turned back to zero when desired, ready for another trip. The season's total mileage is recorded as well. This is all shown on one dial that is plain and distinct, and can be read at a glance. The Hoffecker Speed and Mile Register is Positive Every Time.

"THERE IS NO GUESSING"
**"The Hoffecker" Speed and
Mile Register Co.**

Motor Mart, Park Sq., BOSTON, MASS., U.S.A.



A MASTERPIECE IN TIRE CONSTRUCTION

G & J Oval Raised Tread Tire
Made of Best Materials—Properly Put Together

CURED IN OPEN STEAM

Toughening the rubber and making the tire strong and durable
Call at our factory or any of our Branches, and let us tell
you all about it. Catalog mailed on request.

G & J TIRE CO.

INDIANAPOLIS

DEPOTS:
Chicago Buffalo Detroit Boston
Cleveland Denver Philadelphia
Oakland, Calif. 401 Twelfth St.
New York 10 West 60th St.

DISTRIBUTING AGENTS:
Minneapolis Plant Bros.
Portland, Ore. Keats & Co.
Los Angeles Ramsay-Hutchins
Rubber Co.

THE SELF LUBRICATING Diezemann Shock Absorber



The Diezemann is the only shock absorber made embodying the necessary self lubricating feature. As lubrication is essential to any frictional device, the Diezemann is therefore the only practical absorber in use today. The Diezemann Shock Absorber will outwear any automobile. It is so constructed that it is a part of your car—not an accessory.

DIEZEMANN SHOCK ABSORBER CO.
1316 Hudson Street : : HOBOKEN, N. J.

**THE
London
Tops**

Style
Durability
Quality

LONDON AUTO SUPPLY CO., 1229 Michigan Ave., Chicago

OUR COMPLETE CATALOGUE Automobile Supplies

Will be issued April 1st. Sent on request

SIBLEY & PITMAN

26 Warren Street, NEW YORK

SIMPLICITY COUNTS—Duryeas have less pieces than others. This means less trouble, greater reliability, easier operation, lower maintenance cost. Catalog free.

DURYEA
Reading, Pa.

The "St. Louis" THE NEW TYPE XV

30-34 H. P. —\$2,200



This is the "Rig that Runs," of which you have heard so favorably.

Catalogue Free

ST. LOUIS MOTOR CAR CO.

PEORIA, ILL.

Auto Top Bronzes

Bronze Separators, Snaps, D Rings, Nuts, Screws, etc. Also Mud Guards, Dashes, Tool Boxes, Guard Bolts, etc.

C. W. COOPS CO.
3 Appleton St.,
BOSTON, MASS.

"A COOLER THAT COOLS"
**Fedders Genuine
Square Tube Radiator**
Strongest, Handsomest, Most Efficient.
Easiest to repair. Light.

FEDDERS MFG. WORKS. :: Buffalo, N. Y.

GROUT GASOLINE CAR

Runabout, 30-35 H. P., \$2,400

Touring Car, 30-35 H. P., 2,500

EQUIPMENT

Top, Two Headlights and Generator, Two Side Lights, Horn, Complete Set of Tools.

ESTABLISHED 1896.

MENDENHALL'S ROAD MAPS

ROAD MAPS Specially designed and bound in pocket form for the use of Touring Automobilists.

WESTERN—Ohio, 25c; S. W. Ohio, 50c; No. Ohio, 50c; Indiana, 50c; So. Indiana, 35c; N. W. Indiana (just out), \$1; Illinois, 25c; Michigan, 25c; Iowa, 25c; Missouri, 25c; Wisconsin, 25c; Kentucky, 50c.

EASTERN—New York State, 75c; New Jersey, 50c; Pennsylvania, 50c; Maryland and Delaware, 75c.

C. S. MENDENHALL, Publisher, 508 Race St., CINCINNATI, OHIO

READ MOTOR AGE ... \$2.00 per Year

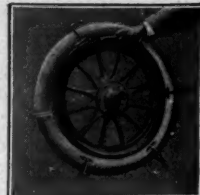


Put on or Take off Your Tire in Five Minutes Without Help and Effort WITH THE "L & M" TIRE ADJUSTER

the only ring tire adjuster on the market. Why does it take so much time and effort to put your tire on? Because the contraction of the tire at one point when you press the ring into place, forces it out at all other points. The "L & M" Tire Adjuster will overcome this difficulty. It will also enable you to remove your ring with ease when it sticks to the tire. It consists of six tools which are slipped over the tire at intervals, and by turning crank the tire is forced back from the ring all the way round, thus enabling you to put on or take off the ring with ease. The "L & M" Adjusters are sold at \$5.00 per set delivered. In two sizes:

No. 1—To fit any tire up to 3½ inches. No. 2—To fit any tire up to 3½ to 5 inches.
Write for illustrated booklet. Leather carry bag \$2.50 extra.

THE LONG & MANN CO., 517 Central Building, Rochester, N. Y.



The Mason Motor Car Co.

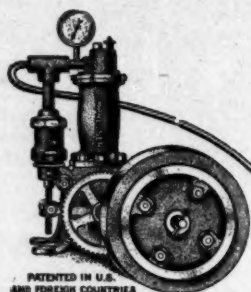
DES MOINES, IOWA

Make the Strongest and Swiftest
Two Cylinder Car in the Market.

Built for the Country, Hilly Roads.
Seats 5. Weighs 1750 lbs. 24 H. P.

Price \$1250

A Postal Card will give you all information



PATENTED IN U.S.
AND FOREIGN COUNTRIES

Compressor Works Automatically and Always Keeps Tank Filled

Write us for Prices and Descriptive Bulletin

KALISCH AIR BRAKE CO. 1315 Chestnut St. ST. LOUIS

Air Brakes

Can be Installed On Any
Car at Little Expense

Will also furnish Air for inflating
Tires, Blowing Hoses or
Whistle, cleaning Car Body or
Cushions.

MUD

FORGET IT AND USE
WEED'S TIRE GRIPS.
POSITIVELY STOPS SLIPPING OR SKIDDING.
THEY MAKE BAD ROADS GOOD.
WEED CHAIN TIRE GRIP CO.
SEND FOR BOOKLET "C" 28 MOORE ST.
NEW YORK CITY.

No Tool Kit Complete Without the Auto-Cle Wrench

It will save you all
kinds of trouble

REDUCES EXPENSE

Write us about it

QUINCY, MANCHESTER, SARGENT CO.
1175 Old Colony Building CHICAGO, ILL.

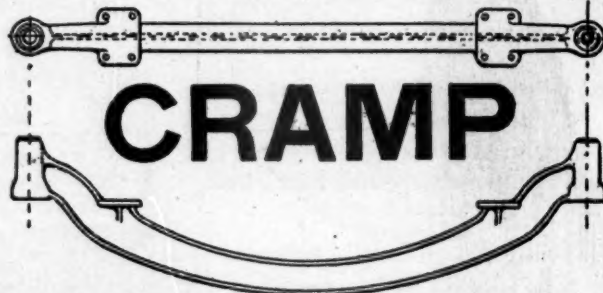
Veeder ODOMETERS

For \$10.00 you can get the Form B Veeder Odometer which goes on the left steering arm, and for \$25.00 you can get the Form D, which goes on the dash. The latter type has two registers, one of which may be set to zero at will.

"It's Nice to Know
How Far You Go."

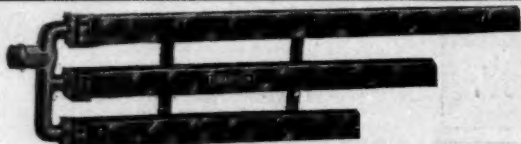
THE VEEDER MFG. CO., 25 Sargeant St., Hartford, Conn.

Cyclometers, Odometers, Tachometers, Counters and Fine Castings.



The Winton Front Axle Casting of Parson's Manganese Bronze
One hundred thousand pounds of Ingots furnished for the 1906 Cars.

The William Cramp & Sons Ship & Engine Building Company
PHILADELPHIA, PENNA.



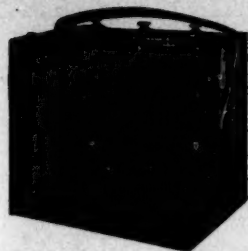
You can identify them by their beautiful tone. ARRANGERS, DEALERS will find the TUBAPHONE easy to sell and PROFITABLE.
WRITE for prices and illustrated descriptive matter.

TUBA PHONE

NO SOLDER—JUST BOLTS—No Blast Too Hot to Affect It. Our Cut Out Valve must be seen to be appreciated. Also used for Muffler Cut Out.

CONSTRUCTION—1, 2, 3 and 4 Tubes. FINISH—Standard, Oxidized. Option Full Nickel or Brass. TONE—a melodiously deep and clear musical sound.

MILLER-HOPKINS MANUFACTURING CO. INDIANAPOLIS, IND.



"Exide" Sparking Cells

These cells have been designed and assembled with great care, especial attention having been given to each detail, making them a practical ignition cell for gasoline engines in Automobiles and Auto Boats.

Depots for the sale, care and repair of Exide Batteries in many of the principal cities. Addresses upon application.

THE ELECTRIC STORAGE BATTERY CO. PHILADELPHIA, PA.

Sales Offices—New York Boston Chicago Pittsburg St. Louis Cleveland Oakland Toronto, Canada Mexico City

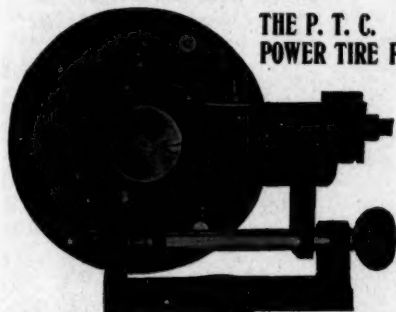
Springfield Tops

All Styles of Tops for all Makes of Cars



Aluminum
Bodies
Fenders
Hoods

Springfield Metal Body Co.
72 Birnie Ave., Springfield, Mass.



THE P. T. C.
POWER TIRE PUMP

It is designed to inflate pneumatic tires by POWER driven by friction from fly wheel. Always in place. Started by turning a screw. Write for circular. The Pacific Tucking & Manufacturing Co., 471-3 18th St. Brooklyn, N. Y.

ALUMINUM

Aluminum

Automobile

Parts a Specialty

The Pittsburgh Reduction Company
PITTSBURGH, PA.

Hicks Speed Indicator Company

No fluctuation on low mileage indication
ACCURATE RELIABLE DURABLE

Send for Catalogue

1384 BEDFORD AVE., BROOKLYN, N. Y.

TRUFFAULT-HARTFORD SHOCK ABSORBER

AN AUTOMOBILE NECESSITY

Cars under 1,500 lbs. \$40 (Four suspensions) Cars over 1,500 lbs. \$60 (Four suspensions)

Immediate Deliveries
Write for booklet

HARTFORD SUSPENSION CO.

E. V. Hartford, Pres. 69 Vestry St., N. Y.



Weston Electrical Instrument Co.

**Electrical Measuring
Instruments for use in
Electrical Carriages and Charging Stations**

Send for Catalogue

Main Office **Waverly Park, NEWARK, N. J.**

New York Office, 74 Cortlandt Street



Switchboard Inst. Type K

Protect Your New Tires. Repair the Old Ones

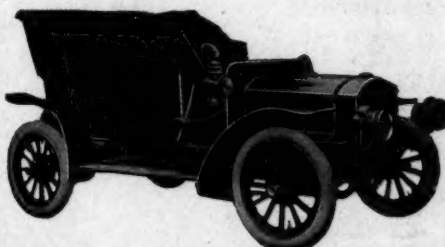


Tires
Will Last
Forever

Steel Link
Bands

Hooks to
Rim

You can fix Blowout quick. If tire is completely covered by these clasps you cannot have Blowouts, Punctures, Rim Cuts or wearing off of tire. (Any old tire is good. How can it get away if encircled by steel?) As flexible as ever. Tread plates corrugated to prevent skidding.
KIMBALL TIRE CASE CO., 173 Broadway, Council Bluffs, Ia.



IROQUOIS

Standard for Quality

Type C. 25 H. P., \$2250 Type D. 35 H. P., \$2500
Type E. 40 H. P., \$3000, 7 Passengers

WRITE FOR CATALOGUE

IROQUOIS MOTOR CAR CO. :: Seneca Falls, N. Y.

ELASTIC GUM TIRE FILLING

Makes a Tire Puncture Proof at the cost of an inner tube. Adds many thousand miles in service to the life of any pneumatic tire, either Clincher or Single Tube. Special proposition to dealers and repair men. Write for particulars today to

**Kenwood Automobile
Station**
5035 Cottage Grove Avenue
CHICAGO, ILL.

ATWOOD "STAY-LIT"

LAMPS ARE THE BEST
ATWOOD MFG. CO., Makers
Send for catalogue Amesbury, Mass.

EVERYTHING IN
SUPPLIES
AUTO
FOR OWNER AND DEALER
SEND FOR CATALOGUE No. 49
EXCELSIOR SUPPLY CO.
ESTABLISHED 1876 CHICAGO

GARAGE and REPAIRS

Perfect facilities for all kinds of repairs and rebuilding. Extensive line of cars for rental. Complete line sundries and accessories. Service any hour day or night. Special attention given telephone calls.

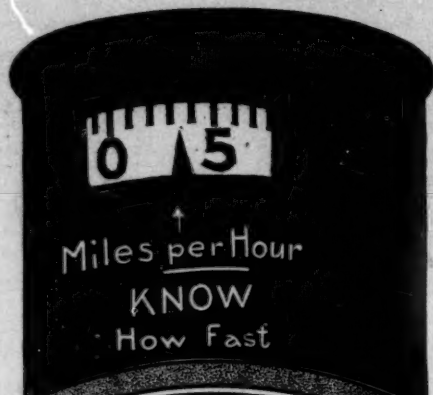
Fancher Bros. & Feldt

1618 Sherman Ave. Phone Evanston 3041

EVANSTON, ILL.

Here is
the
**AUTO-
METER**
(Actual Size)

You can read
your speed
from the seat
without
stooping



It's accurate
within 6 inches
per mile
when bought
and is

**GUARAN-
TEED**

**TEN
YEARS**

**"E. & J." LAMPS
GAS AND OIL SIDE-LIGHTS**

Copy of our 1906 Catalogue mailed on request
The EDMUNDS & JONES MFG. CO.
DETROIT, MICH.

BE INSURED



against short circuiting by using only the Best French
Ignition Cable. MANUFACTURED BY SOCIÉTÉ INDUSTRIELLE
DES TÉLÉPHONES, PARIS, FRANCE. Samples and
prices on request. Agents wanted.
American Branch, 1591 Broadway, N. Y.

Mr. Motorist—
Do you want to be Certain and Sure
about your speed and **KNOW** how fast you
are going? Not **approximately**, you understand,
but **actually**, without the least question or guesswork
about it. There is just one way to be **absolutely certain**
and that's to equip your car with
**THE WARNER
AUTO-METER**

(REGISTERS SPEED AND DISTANCE)

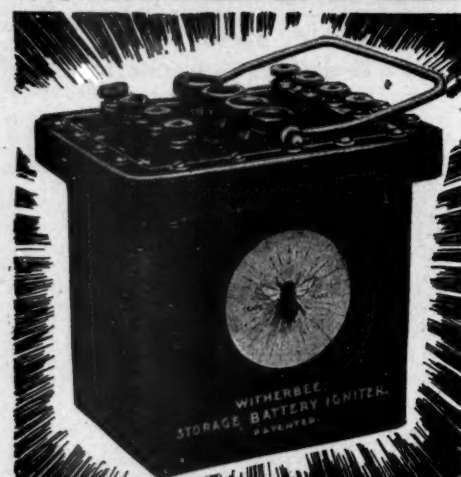
This instrument of precision is just as accurate and reliable as the Mariner's
Compass, because it is actuated by the same unchangeable force—
MAGNETISM. It's the only indicator without cams, sliding plates or friction
parts of any kind, which make other speed indicators inaccurate at the
rate of 5 to 8 miles per hour for every 1-1000 inch of wear. There is
nothing to wear or become unreliable on the Auto-Meter—you can't
wear out Magnetism, nor can you wear out in a lifetime the sapphire
jewels on which the magnet of the Auto-Meter turns. That's why
the Auto-Meter can be changed from car to car as long as you
run one, and still be as accurate and truthful the last day as it
was the first. All dealers and the best garages sell the
Auto-Meter. Or if not sold in your neighborhood, we'll sell
you direct. You'll never possess **Exact Knowledge** of
your speed until you have **The Auto-Meter**.

WARNER INSTRUMENT CO.
372 Roosevelt Street
BELOIT, WIS.

GUARANTEE We guarantee the Auto-Meter to be absolutely accurate and free
from imperfections of materials or workmanship when purchased.
We also guarantee the magnet (the heart of the instrument) against loss of magnetism; which
alone (barring accident) can render the Auto-Meter unreliable.

"Auto Pointers"—a trouble-saving 50-cent book, invaluable to the man
who drives his own car, sent free if you write us.

WITHERBEE



Storage Batteries

**Guaranteed to Satisfy
Or you get your money back**

Used and indorsed by 61 of the leading automo-
bile and motor boat manufacturers.

Just as certain as you live you will avoid all
ignition troubles if you specify

Witherbee Storage Batteries

All jobbers sell them. Write for catalogue

WITHERBEE IGNITER CO.
541-543 West 43d Street :: New York City



CARTER CAR "THE CAR AHEAD"




The Carter patented system of friction transmission used in these
cars is guaranteed the simplest, most durable and powerful in use. 1
lever controls all speeds forward and back. 8 years in actual service.

No gears to strip, no clutch to slip. Will hold on any hill
Catalogue free

MOTORCAR CO. DETROIT, MICH.

Interstate Automobile Clearing Company

39 East 42d Street

NEW YORK

Have you a car to sell?
Somebody somewhere wants to buy it. We can find that somebody for
you at a small fixed cost and save you trouble and publicity. Try us.

Do you want a bargain in a good car?
Write, telling us just what you want, and we will send specifications
of bargains we have registered.

WM. E. METZGER, President.
G. H. STILLWELL, Vice-Pres. & Sec'y.
O. A. WARDLE, Treasurer.



THE BADGE OF PERFECTION

No More Punctures, Rim Cutting, Coming Off, or Explosions.

FAWKES AIRLESS CLINGER MOTOR

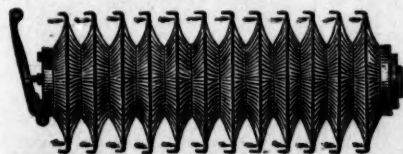
—the only safe tire—ends them all. Not a solid tire yet lasts longer—not a pneumatic but rides as easy. Thousands in use and demand increasing enormously. Try a set **TEN DAYS FREE**. Write for free Fawkes booklet on "Tire Troubles" containing scores of convincing testimonials. Milwaukee Rubber Works Co. 34 MacMillan Ave. Cudahy, Wis.

"NO SAND TOO DEEP—NO HILL TOO STEEP"

Models C and D, 2 cylinders, \$1,250, \$1,500
Model G, 4 cylinders, 2,500

Write for Catalogue

JACKSON AUTOMOBILE CO., Jackson, Mich.
Members A. M. C. M. A.



THE YANKEE SILENT AIR-COOLED MUFFLER (Patented)
For Automobiles. 15 per cent more power guaranteed, without back-pressure. Radiation so great the muffer keeps cool, also Engine. Cannot explode or clog because discs expand. To avoid heating engine, do not use a muffer resembling a stovepipe; but see that your 1906 cars are provided with the YANKEE. All steel, makes it light and durable.
Free Catalog. D. B. SMITH & CO., Utica, N. Y., U. S. A.
N. E. Agent, CHAS. HOLMES MACHINE CO., Boston

HOPEWELL TIRE CASE

NEW NEAT ALL COLORS
WATER STAIN GREASE DUST PROOF

ARTIFICIAL LEATHER 4.00
BLACK ENAMELED DUCK 3.00
MANUFACTURED ONLY BY
HOPEWELL BROS.
42 OSBORNE ST. CAMBRIDGE, MASS.
IF YOUR DEALER DOES NOT CARRY SEND US P.O. ORDER

TOPS



We have been making tops for 15 years and surely know how to turn out the best possible grade at **RIGHT PRICES**. We do not claim cheapness but **QUALITY** and that is the kind of top you want.

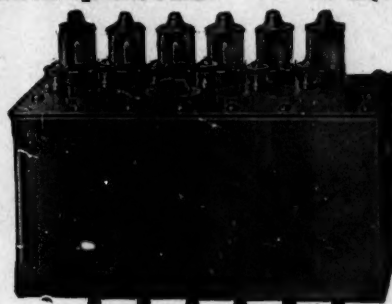
Write for circular matter and prices

INDIANAPOLIS AUTOMOBILE TOP CO.
27 E. Ohio St., INDIANAPOLIS, IND.

FORCE FEED LUBRICATION

CONSTANT SIGHT FEED.

NO LIQUIDS



MCCORD & CO., 1402-80 Old Colony Bldg., CHICAGO.

Messrs. E. J. Day & Co., Pacific Coast Distributors
12th and Madison Sts., Oakland, Cal

4-Cylinder Ford Runabout . . . \$500

6-Cylinder Ford Touring Car . . \$2500

Catalogue Describes Them

FORD MOTOR CO.

DETROIT, MICH.



JACKS

For Automobiles

We manufacture the largest line of lifting Jacks in America

THE DUFF MANUFACTURING COMPANY
PITTSBURGH, PA. Works: ALLEGHENY, PA.



Pat. Nov. 16 and 30, 1907

Way's Muffer. Perfect Chest and Throat Protector for Men, Women and Children
THE WAY MUFFLER CO. :: PHILADELPHIA

REX IGNITER

POINTS OF SUPERIORITY: Lower Natural Resistance; No Self-Induction; Longer Life; Efficiency Unsurpassed. Dealers write quickly if you want the agency. Catalog on application.

NEW ENGLAND MOTOR CO., :: Lowell, Mass.



A **GOOD** thing is usually a target for imitators. Be sure to insist on **CLUB COCKTAILS** if you want the satisfaction that goes with a royal drink.

It is not enough for imitators to use the same ingredients—the secret of **CLUB** superiority is the exquisite proportions of liquors used and the ageing. This formula cannot be imitated—so **CLUB COCKTAILS** remains the only brand.

Seven kinds—Manhattan, Martini, Vermouth, Whiskey, Holland Gin, Tom Gin and York.

G. F. HEUBLEIN & BRO., Sole Proprietors
Hartford New York London

Rainier

The Pullman of Motor Cars

Celebrated for its last year's record, admired for the present perfection, sold with a brief comprehensive guarantee that speaks volumes.

Free of Repairs for One Year

50-55 H. P. - \$4,000

Make and Break Spark, Simms-Bosch Magneto.
THE RAINIER CO., Broadway and 50th St., New York
Philadelphia Branch, 236 N. Broad St.
Chicago Branch, 1233 Michigan Ave.
Boston, Morrison-Tyler Motor Co., 121 Massachusetts Ave.
St. Louis, Van Automobile Co., 4706 Washington Ave.
Cleveland, The Paxson Motor Co., 317 Huron Ave.
San Francisco, A. H. Hayes, Jr., 311 Pine St.

COLD ROLLED Chrome Nickel Steel "MAXMIN"

Specially treated and finished for high grade automobile frames. We are sole producers. Write for test reports.

Columbia Steel Company
ELYRIA, OHIO

GRAY & DAVIS
HIGH GRADE LAMPS
AMESBURY, MASS.



Ham's Lamps Are Easy to Clean

NOTICE how accessible every part is, no other lamp has this feature. Every user concedes that HAM'S COLD BLAST LAMPS have no equal. Insist on Hams, they are the best and cost no more than inferior goods. If your dealer does not handle our line write us, we will supply you direct. Address Dept. "C."

C. T. HAM MFG. CO.
ROCHESTER, N. Y.



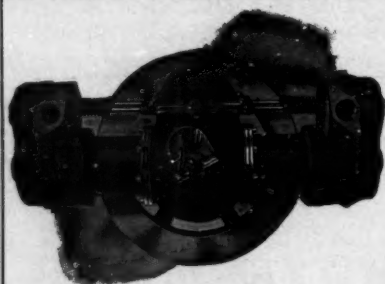
The Bullard Speed-Recorder



Tells time, speed, and distance your car travels and makes a record on a detachable card of every mile traveled, when, and how long stops were made, total mileage of the season, etc. Accurate at any speed, indisputable evidence in any court. Indispensable on delivery vans and rented cars. It will record every minute the car is in use. Send for catalogue.

J. H. BULLARD

14 and 61 Hawley St. SPRINGFIELD, MASS.



The Auto-City Auto Engine

16-18 H. P. double opposed cylinder. Bore and stroke 5 x 5 inches. Weight, including balance wheel, 300 lbs. Length, 34 inches; width, 14 inches. Valves mechanically operated. Best auto engine made and made the best. Send for circular and prices.

THE BEILFUSS MOTOR COMPANY . . . Lansing, Michigan



VON SCHWARZ Licensed Acetylene BURNERS

MADE OF ONE PIECE OF LAVA...NO METAL ARMS
Once in alignment...always in alignment

MANUFACTURED UNDER LICENSE

(U. S. Patent No. 889,342, Aug. 31, 1907.)

In a Class by Themselves

Standard of Merit Wherever Acetylene is known

Used and sold by every reputable Auto Lamp Maker and Dealer, 40¢ per piece, \$1 per doz. Avoid infringing substitutes. "J. V. S." on Steatite; and "J. V. S." and "M. K. & Co." on pillar.

M. KIRCHBERGER & CO.

Sole Importers and General Licensees ... 47 Park Place, New York



WRITE FOR DESCRIPTION AND REFERENCES
BECKLEY-BALSTON Co., Chicago, Ill., Distributors
PHOENIX AUTO SUP. Co., St. Louis, Mo.,

WALLWORK'S

NON-SKIDDING

TIRE COVERS

THE WELLS LIGHT MFG. CO.

NEW YORK

Louis G. Duquet
AUTOMOBILE
ACCESSORIES

107 W. 36th St., New York



Strength, Safety, Simplicity
in the
SPRINGFIELD JACK and TIRE TOOL
For any car weighing from 500 to 4,000 pounds. Price, \$2.25, delivered. Baffle Proof Weight only 4 1/2 pounds. Sold by all dealers.
THE SHAWVER CO., Springfield, Ohio

Missfires?

Pull this switch

The **DUPLEX** Plug Attachment makes any plug fire, no matter how foul.

Ask for Circular No. 8 and references of satisfied users.

For Autos and Boats
Price \$2.50

DUPLEX IGNITION CO.
1555 Broadway, N. Y.
AGENTS WANTED



AN ITEM OF INTEREST

OUR 128 PAGE CATALOGUE OR ENCYCLOPEDIA OF AUTOMOBILE SUPPLIES

SENT FREE ON REQUEST

THE MOTOR CAR EQUIPMENT COMPANY, NEW YORK

Main Office: 55 Warren Street

Branch Store: 1645 Broadway

Phelps Gasoline Pump FOR AUTOMOBILES

Works equally well with Kerosene, insuring a steady pressure. Readily attached to any steam vehicle. A record of three years of uniform success since the pump has been on the market. Not one returned through failure. Works with any kind of liquid fuel. Send for descriptive circular and letters of commendation.

Boston Automobile Exchange 173-177 Berkeley St., Boston, Mass.



SAMSON TYPE COURSE TIRE

Strongest on earth

12 W. 33d St., New York

G. de PONTAC, Mgr.

For Boiled Down Information About
Automobiles in General and
Welch Cars in Particular

Address

WELCH MOTOR CAR CO., Detroit, Mich.
FACTORY, PONTIAC, MICH.

SUPPLEMENTARY SPIRAL SPRINGS

They prolong the life of your engine and entire car. Save tires. Increase comfort. Don't cost much. Last forever. Write,

SUPPLEMENTARY SPIRAL SPRING CO.
4527 DELMAR AVE. ST. LOUIS, MO.

Buick

22 H. P., \$1250

BUICK MOTOR CO., Jackson and Flint, Mich.

CORCORAN LAMPS

SURPRISINGLY
HIGH-QUALITY
AMAZINGLY
LOW PRICE

If interested in Economical Equipment Without Sacrifice of Quality
Write CORCORAN BROS., 727 Reading Road, Cincinnati, O.

Hyatt Roller Bearings

TURN FRICTION INTO ENERGY

HYATT ROLLER BEARING CO.
Harrison, New Jersey

ARE YOU FROM MISSOURI?

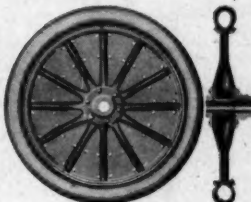
Subscribe for Motor Age.

The Indestructible Steel Auto Wheel

Pro—

The Indestructible Steel Wheel is suitable to all climatic conditions; it will stand an enormous weight, is easily cleaned, has less wind resistance and therefore is better adapted for speed than the spoked wheel.

The wheel in reality is more durable and suitable than any other, for which statement write us for several good reasons.



Con—

The wood wheel with its spokes in the center of a wide tire, leaves the tire unsupported, save in the center, often leaving the outer edges to support the weight in traveling over ordinary roads. The Indestructible Steel Wheel overcomes this, inasmuch as the plates are separated and placed so as to support the outer edges as well as the center.

Manufactured by

TURNER & FISH

CHICAGO, ILL., City Office, Suite 406, 17-21 Quincy St.

TIRE REPAIRS

All makes and types given equal attention
Correspondence solicited

RUBBER GOODS REPAIR CO.

89 16th St., CHICAGO Phone Calumet 1280

Established
1876
Factory
Rebuilt 1902



C. G. MEYER, Manufacturer of
AUTOMOBILE TOPS
72 MAIN STREET, TIFFIN, OHIO

1906 Acme

From Steel Bar
To Finished Car

30 H. P., 5 Passengers, \$2,750 | 45 H. P., 7 Passengers, \$3,500
CATALOGUE MAILED ON REQUEST

ACME MOTOR CAR CO. READING, PA.

SIMPLICITY

THE CAR WITHOUT A GEAR OR
COG IN ITS ENTIRE CONSTRUCTION
to Strip or get out of Alignment.

WRITE FOR PARTICULARS

Evansville Automobile Co., Evansville, Ind.



No More Tire Trouble

Salisbury Tires

No Rubber but the Air Tube

SALISBURY TIRE CO.,

200 N. West St., Owosso, Mich.

The NEW HOTCHKISS

BUILT LIKE A GUN, BY GUN-MAKER

THE DE LEON

A FRENCH CAR AT AMERICAN PRICE

ARCHER & CO., 1597 Broadway, N. Y. City

The Orpheus Chime



will last a lifetime, and cannot get out of order. Yet it can be taken apart, cleaned, and re-assembled in five minutes. It has no separate reed to get loose, and has double adjustment of pitch tubes. Easily adjusted in tone. Has only half the parts of and other chime. And the price is right. May we send full description?

CENTRAL GARAGE

332 E. Market Street, Indianapolis, Ind.

Auto Monograms



What? Who makes the Monograms? If you have not got one on your auto, write at once to the leading and most expert manufacturers.

JOHN A. SALMAN & CO.

Room 404, 21 Bromfield St., Boston, Mass.



Catalogue and prices on request.
Speed Changing Pulley Co., Indianapolis, Ind.

HIGH GRADE MOTOR CARS



35-40-60 H. P., \$4,500 to \$7,000
THE LOZIER MOTOR CO.
58th St. and Broadway
NEW YORK CITY
Members A. L. A. M.

Agents:
Martin & Hart, Philadelphia
Harry Fosdick Co., Boston
Geyler & Levy, Chicago

CHOOSE WISELY!

Always remember: You can't get anything for nothing.

Our prices only leave us a very moderate legitimate profit.

Give the numerous worthless imitations a wide berth. They are a trifle cheaper, but in each and every case it's a bad investment—a dead loss.

We have an experience of fifteen years.

The HERZ-TIMER is made in 17 different models to fit any make of motor. No machine work for you.



Herz-Timer Tangent.

Every Contact Individually Adjustable.

All Bronze and Steel.

Running packed with grease.

Most exquisitely made.
Driven by the Motor, by Gear, Belt or Chain.



B. B. Pump.

A thing long looked for.
Pumps up the Tires—blows the Whistle or Horn.

Height, 11 in. weight, 7 lbs. Inquire about our complete Moto-Whistle outfit.



PUCK

The switch with all contacts under dust and water-proof cover.

HERZ & CO.
[CIVIL ENGINEERS]

203 Lafayette Street Lately called Elm Street
NEW YORK

Write for our "Handbook of Ignition." It's free

1,000 to 1,500 Miles



on one charge is a common performance for the Monitor Type No. 6 Storage Battery on one and on two cylinder cars, such as the Olds, Reo, Autocar, Rambler, Cadillac, etc. It is absolutely reliable and of the highest grade.

Voltage, 6; capacity, 20 ampere-hours; dimensions, 5x5½x7¾ inches.

THE PRICE IS \$9.00.

For four-cylinder automobiles and the larger touring cars, batteries of larger capacity are recommended.

Monitor, Type B, 6, voltage 6, capacity 45 ampere-hours, price \$15.00.

Monitor, Type C, 6, voltage 6, capacity 60 ampere-hours, price \$18.00.

AMERICAN BATTERY COMPANY
165 SOUTH CLINTON ST., CHICAGO, ILL.
Established 1889

TANK GAGE



For tanks with or without pressure, to show quantity of gasoline. Simple, reliable and of superior workmanship.

The "Triumph" Gasoline Tank Gage has been adopted as part of the regular equipment of all "Pierce Great Arrow" Cars, also Northern Manufacturing Co., Detroit, Mich., for the season of 1906.

See that your new car has a "Triumph" Gage.

Boston Auto Gage Co., BOSTON MASS.

AMERICA'S MOST POPULAR RAILWAY

CHICAGO AND ALTON

PERFECT PASSENGER SERVICE

BETWEEN

CHICAGO—KANSAS CITY.
CHICAGO—ST. LOUIS.
CHICAGO—PEORIA.
ST. LOUIS—KANSAS CITY.

THROUGH FULLMAN SERVICE
BETWEEN CHICAGO AND

HOT SPRINGS, ARK. DENVER, COLO.
TEXAS, FLORIDA, UTAH,
CALIFORNIA AND OREGON.

IF YOU ARE CONTEMPLATING A TRIP, ANY PORTION OF WHICH CAN BE MADE OVER THE CHICAGO & ALTON, IT WILL PAY YOU TO WRITE TO THE UNDERSIGNED FOR RATES, MAPS, TIME-TABLES, ETC.

GEO. J. CHARLTON,
GENERAL PASSENGER AGENT,
CHICAGO, ILL.

WHOLESALE RETAIL

The Snutsel Auto Supply Co.
1534 Broadway (Times Square), New York
Sole U. S. Agts. for Maitre & Blanche de Paris
Accessories and Parts
and for The B. P. G. Spark Coils
Everything in Ignition and Supplies
IMPORT Write Dept. M. EXPORT

GILBERT

Automobile Fabric Supplies

ARE THE
ONLY
ONES
WORTH
HAVING.

We make
THE

TIRE CASE, TUBE
CASE,
TIRE BAND,
STORM APRON,
TOOL ROLLS,
LEGGINGS,
KNUCKLE BOOTS,
LAMP COVERS,
Etc.

Look for the name,
GILBERT
and don't accept
cheap imitations.

Sold at leading supply firms and stations.
Catalog on request.

Water-tight and self-fastening. PRICES
Enamel Duck, \$4.00; Fabric Leather, \$5.00.

THE GILBERT MFG. CO., NEW HAVEN CONN.



—no noise
but the
wind

the best car
for the money.

\$3,000

SALES AGENTS
American Motor Car Co., 70 Kilby St., Boston.
The Southern Motor Car Co., Los Angeles, Cal.
The Covell & Crosby Motor Co., 1621 Broadway,
New York.
The American Automobile Garage, 933-5-7 N. 7th
St., Philadelphia.

THE AMERICAN MOTOR CAR CO.
912 State Life Bldg., Indianapolis, Ind.

JOBBER and DEALERS SEND FOR PRICES ON

YANKEE GRADMETERS
YANKEE AMMETERS
YANKEE VOLTMETERS
YANKEE PLUGS
YANKEE ELECTRIC HORNS
YANKEE SIREN HORNS

Everything for the Automobile Catalogue Mailed Free

E. J. WILLIS CO., 8 Park Place, N.Y.

If it's Plug Trouble
Try a
Never-Miss
Porcelain, Lava or Mica, \$1.50 Each
Cotter, Chain Tools, Ammeters, Battery Connections, Never-Miss Dry Cells, Oil Guns.
"Get the best." Ask your jobber or dealer for Never-Miss Specialties. There are none just as good.
Write Dept. B for 1906 Catalogue
Start the season with Never-Miss and start right
NEVER-MISS SPARK PLUG CO., Lansing, Mich.

**AUTOMOBILE
INSURANCE**
FIRE or LIABILITY
SEND FOR RATES
JAMES W. EASTLAND
FIRST NATIONAL BANK BUILDING, CHICAGO, ILL.

The Stearns
One Model 45 Horse Power
SEND FOR CATALOGUE
THE F. B. STEARNS CO., 2980 Euclid Ave., Cleveland, O.

The Auto Accessories Mfg. Co.
ENGINE CASES, LAMPS, HORNS,
AUTO TOPS, CLOTHING, GOGGLES
265, 267, 269 Jefferson Avenue
DETROIT, MICH.



From one of our quantity
buying customers, speaking
of REMY MAGNETOS:
"We have failed to find any
difficulty either mechanical
or electrical, and must say
that we have not received a
single complaint of any kind
from any one of our custom-
ers up to present writing."
(Signed)
SMITH & MARLEY Mfg. Co.

REMY ELECTRIC COMPANY, Anderson, Indiana

The IGNITION PROBLEM is SOLVED

in the "Lacoste" High Tension
Magnetos for Jump Spark Ignition

We guarantee this device to be ABSOLUTELY PERFECT
We have done the experimenting.

NO BATTERIES. NO COIL. NO COMMUTATOR.
Everything for Electrical Ignition.

LEON RUBAY, Sole U. S. Agts., 140 W. 38th St., N. Y.

Robert Volt-Ammeter
For General Battery Testing—Guaranteed
Tests both Volts and Amperes
3-VOLTS 6-VOLTS
30-AMPERES 30-AMPERES
Send for Catalogue
ROBERT INSTRUMENT CO.
58 SHELBY ST., DETROIT, MICH.

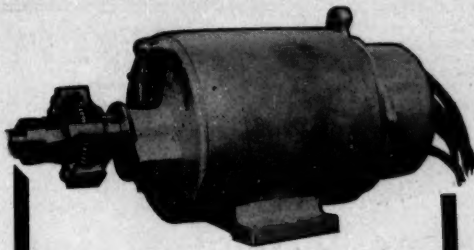
GASOLINE SELF MEASURING OUTFITS

For the Automoblist and the Garage
Guaranteed non-evaporative, airtight, no-leakage.
From tank into automobile reservoir.
Tank underground Pump in building.
Write for Catalog "M"—It will surely pay you.

WESTERN OIL PUMP CO.
2400 Kosciuszko St., ST. LOUIS, MO.

NATIONAL SPRING & WIRE COMPANY, ALBION, MICHIGAN.
All Leading Automobile Manufacturers use the Oushion
Spring. Ask for Samples and Prices.

CANDY CARBIDE
For French Auto Lamps—Impregnation dans le vide
Packed only in 10 lb. cans. Price \$2.00 each.
Discount to dealers in case lot of 12 cans.
SOLE MANUFACTURERS
ACETYLENE GAS ILLUMINATING CO.
105 Walker Street, New York



**The WILSON Improved
MAGNETO**

The high efficiency of this Magneto
makes it suitable for make and break
or jump spark ignition from the same
armature winding, by simply using a
double throw switch in the primary
wiring, making it possible to throw the
Magneto on either system of ignition
without stopping the engine. 1 Blue
prints, showing wiring arrangement,
furnished with each Magneto. 1 Every
Magneto guaranteed to increase engine
speed 15 to 20 per cent. Circular and
prices upon request.

DRAKE ELECTRIC CO., 1344 Michigan Ave., Chicago

High Grade Auto Tops Our Specialty

Also Slip Covers, Lamp
Covers, Tire Covers, Tool
Cases, Dust Hoods and
Foot-rests.
Write for catalogue and
prices.

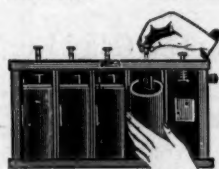
WARNER
Pole & Top Co.

1658 CENTRAL AVE., CINCINNATI, OHIO

**Manufacturers of High Grade
AUTOMOBILE RADIATORS, ETC.**

THE MAYO RADIATOR CO.
New Haven, Conn.

JACKSON WIRELESS BATTERY HOLDER



The Simplest and Most Prac-
tical Battery Holder on the
market. No loose connections.
No short circuits. Anyone can
replace the batteries in a min-
ute. No skill required. Four or
five cells. Easily attached to
any automobile. Price \$5.00.
Ask your dealer or write to us
for free pamphlet.
JACKSON MFG. CO.
614 17th St., Denver, Colo.

FRAYER - MILLER
THE CAR OF ENDURANCE
Cooled Through Air Jackets
AN AMERICAN PRODUCT
Imitating no Foreign Car
Oscar Lear Automobile Co.
Columbus, Ohio.



Sprockets

Chains and
DIFFERENTIAL

In Stock or Order
Send for new Catalog

CULLMAN WHEEL CO., 1021 Dunning St., Chicago

Subscribe for
MOTOR AGE

Automobile Tire Protectors
For the Prevention of
Skidding, Punctures and Wear
LEATHER TIRE GOODS CO.
Newton, Upper Falls, Mass.

CHICAGO AUTO AGENCIES

WEBER
Distributor
Gasoline and Electric
POPE CARS
\$500 TO \$6000
"Go-As-Far-As-You-Like"
WRITE FOR CATALOGUE
SERVICE

ORLANDO F. WEBER CO.,
1327 MICHIGAN AVENUE - CHICAGO

Cadillac Automobile Co. of Illinois
1312 Michigan Avenue, Chicago

CADILLAC

Four Cylinder, High Power Touring Car
Light Touring Cars Runabouts Delivery



**THE HIGHEST TYPE
AIR COOLED CAR**

24
Horsepower

The Aerocar Company
347-349 Wabash Ave., Chicago

OLDSMOBILE

Agents and Distributors for Illinois and Wisconsin

THE GITHENS BROS. CO.

1328 Michigan Ave., Chicago
Telephone, South 1658

The McDUFFEE Automobile Co.
Distributors for

Stoddard-Dayton and Royal Tourist

Phone South 1297

1439 Michigan Ave. CHICAGO

LAMBERT Friction Drive
GUARANTEED
PLEASURE AND COMMERCIAL CARS

Write for catalogue or call.

ADLAND MOTOR CO., CHICAGO, ILL.
Salesroom and Garage, 900-902 W. Madison Street

The Chadwick Cars
AND
Motors
MADE BY
FAIRMOUNT ENGINEERING WORKS
3109 Spring Garden Street, Philadelphia
SEARCHMONT REPAIR PARTS FOR SALE



The "B & S" AUTO WRENCH

Drop Forged Steel throughout,
the standard for all around use.

THE BILLINGS & SPENCER CO., Hartford, Conn.



SOULES COMMERCIAL CARS

Correspondence Solicited. **SOULES MOTOR CAR CO.**
Write for details. Selling Dept., 738-740 Woodward Ave., Detroit, Mich.

A "Continental" Motor

In your car will give you the distinction of having the speediest, quietest and most reliable motor on the market. Our new Muskegon plant doubles our output and means prompt delivery. Motors 10 to 45 H.P. Also Clutches and Transmissions. Send for our catalogue before buying.

Continental Motor Mfg. Co., Muskegon, Mich.
K. FRANKLIN PETERSON
Direct Factory Representative, 106 Lake Street, Chicago, Ill.

AUTOMOBILE LUBRICATION

is a problem

"INVADER" OIL

Has Solved

THE OIL THAT GRAPHITIZES
For Air and Water Cooled Cylinders
(Two Grades, Light and Medium Heavy)
You name the car we'll name the grade

CHAS. F. KELLUM & CO.,
128 Arch Street PHILADELPHIA

Climax Commercial Car

\$900 | SEND FOR CATALOGUE

HINDE & DAUCH, Sandusky, O.



Simplicity Automobile
Extension Cape Tops
Simplicity Spray Hoods

CHARLES P. McCLELLAN, Fall River, Mass.



INOBLOCK EIDEMAN
WRITE FOR CATALOGUE
AND PRICES
2500 W. 10TH ST.
DETROIT, MICH.
SOLE AGENTS
GOOD COILS SO. BEND, IND.



STA-RITE

"STAYS RIGHT THE LONGEST."

Sta-Rite Plugs Stay Right Longer than all others. Because their double porcelain does not break. Air space does not allow short circuiting. Short, protected point will not cause pounding. Mica plugs do not loosen and cannot be broken. Highest scientific and tested efficiency. Secure list of 150 cars and right size plugs, and save bother. 47 sizes.

Dynamos, Coils, Timers, etc.

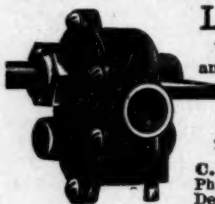
THE R. E. HARDY CO.

86 Watts Street NEW YORK CITY
116 Lake Street, Chicago, Ill.
Special Representatives of American Coil Co.,
E. J. DAY & CO., Berkeley, Calif.

DIXON'S MOTOR GRAPHITE

A new Dixon production for lubricating motors of all kinds.
Free Booklet 82 G tells all about it.

Joseph Dixon Crucible Co. Jersey City, N. J.



Lobee Gear Pump

Well adapted for Oldsmobile and other makes. Works with any type of radiator. Easily attached. Write for prices.

LOBEE PUMP CO.
240 Terrace, Buffalo, N. Y.
C. E. Miller, Agt., New York
Philadelphia, Cleveland, Boston, Detroit.

There are many imitations
but only one STANDARD

The Altomus Distributor

One Coil for any number of Cylinders
C. L. ALTEMUS & CO.
THE BOURSE, PHILADELPHIA
Members N. A. E. & B. Mfrs.



POCKET BATTERY METERS

Permanent accuracy guaranteed. Small and DEAD BEAT. Voltmeters, 0-3v. \$3.50. Ammeters, 0-30 amp. \$3.50. Volt-ammeters, 0-3v. 0-30 amp. \$5.50. Send for circular and discount.

Pocket Meter Co., 18 Main Street, BLUFFTON, O.

Best for Automobiles and Motor Boats

Pantasote Leather

THE PANTASOTE CO., New York and Chicago

The Fool-Proof, Trustworthy, Reliable

Hill Precision Oiler

in just the quantity needed, automatically regulating itself to the speed of the Engine.

We send it On Trial to Manufacturers, that they may prove it for themselves the Best Oiler Made.

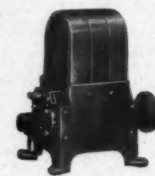
The Steel Ball Co., 888 Austin St., Chicago, Ill.

ALUMINUM BODIES.

J. M. QUINBY & CO.

Est. 1894.

NEWARK, N. J.
Carriage Builders



The Ruprecht - igniter

specially adapted for power boats and stationary gas and gasoline engines. Makes a live spark on the first revolution of the engine. The Ruprecht-igniter sparks instantly, will run with any connection. Has no brushes—commutators—armatures or other moving parts to wear out. Not affected by heat—cold—dust or moisture.

Catalogue free, with full information for the asking. Write now. **THE IGNITER APPLIANCE CO.**
127 Central Ave., CLEVELAND, OHIO.

Complete Lists of Auto Owners, Dealers, Garages and Jobbers

MOTOR DIRECTORIES CO., Inc.,
Successor to
AUTO DIRECTORIES CO.,
108 Fulton St., N. Y. City



POCKET BATTERY AMMETER

0 to 50 Amperes
Indicates in any position and in either direction of current. In testing single cells, the cord is not necessary. Price \$3.50
ELDRIDGE ELECTRIC MFG. CO.
Springfield, Mass.

MISCELLANEOUS.

Advertisements under this head 3 cents per word first insertion; 2 cents per word for each insertion thereafter. Ads set in any style other than regular setting, 24 cents a line first insertion, 16 cents a line for each insertion thereafter.

Special rates for continuous advertising in these columns upon application.

WILL EXCHANGE 40 acres land, value \$12.50 per acre, for automobile. Frank Kilty, Rich Hill, Mo.

WANTED—Good second hand tricycle attachment for motorcycle. G. D. Smith, 2009 N. 3d St., St. Joseph, Mo.

SEARCHLIGHTS AND GENERATORS—We offer a few salesmen's samples of the latest designs, at just one-third regular price while they last. Write quick. Miller Mfg. Co., Peekskill, N. Y.

EXPERIENCED MACHINIST wants position driving car. J., care Motor Age.

FOR SALE—Steam automobile, \$250. Address 318 West Tuscarawas Ave., Barberton, O.

TO EXCHANGE—20 acres fine fruit land, Texas county, Mo., 2½ miles from town; will trade for good gasoline runabout. Address 211 N. Campbell Ave., Springfield, Mo.

FOR SALE—Automobile, 8 h. p. Rambler runabout, in first class condition; \$300. A bargain. Inquire of Dr. A. L. Higgins, Bucyrus, O.

FOR SALE—One 7" Dietz M. L. searchlight and generator with swivel bracket. One 18 h. p. Brennan planetary transmission complete. One 18 h. p. Standard planetary transmission. One Duplex dash coll. One 1" Schebler carbureter. Jas. R. Herbertson, Cadwallader, Pa.

WANTED—To trade, for a second hand automobile, a 20-foot Truscott launch complete, in good condition. Henry Osmundson, Willmar, Minn.

\$300 BUYS up-to-date steam runabout, newly painted; new tires, new kerosene burner; will demonstrate. Want large steam car. F. E. Cole, Toulon, Ill.

FOR SALE—'03 Winton touring car, fine condition; or will exchange for runabout and cash difference. 324 Park Ave., Newport, Ky.

GREAT BARGAINS.

One 1905 Buick engine, new and car in fine condition; National touring car, rear entrance tonneau, 4 cyl., Rutenber engine, car and engine in fine condition, will demonstrate; two-cyl. Rambler touring car, engine new, car fine condition, with cape top, gas-lamp generator and side lamps; one Apperson touring car, 2-cyl. opposed, rear door tonneau, with canopy top, car in good shape; one Winton 2-cyl. opposed, rear door tonneau, with canopy top and side baskets. Fay P. Randall, 120 W. Wayne St., Fort Wayne, Ind.

FOR SALE—Brand new "Weeds Tire Grips" for four or four and one-half. Thirty tires, \$6.50. Max Reichenberg, Omaha, Neb.

FOR SALE—Thomas "Flyer," 40-horsepower; side entrance; seating five or seven people; new tires; has just been overhauled and re-finished and is guaranteed. C. T. Paxson, 1417 Niagara St., Buffalo, N. Y.

FIRST-CLASS REPAIRING—Full line of supplies, second-hand machines, etc. Agents for "Paragon Runabouts," \$375. South Park Automobile Co., No. 97 E. 29th St., Chicago, Ill. Phone Douglas No. 7940.

WANTED—Runabout, suitable for physician's use. Good condition and cheap. Give complete description. C. W. Mackenbach, M. D., Coldwater, O.

FOR SALE—Two 6-cylinder Thomas cars; 60 horsepower. Both have been used for racing by H. S. Houtt and C. A. Coey; one qualified in Vanderbilt elimination trial last year; has done mile in 52 seconds; will be furnished with either racing, runabout or touring body. Write for particulars to the E. R. Thomas Motor Co., No. 1417 Niagara St., Buffalo, N. Y.

EXPERT MACHINIST WITH \$1,000—To enter partnership manufacturing new automobile lubricator of exceptional merits. Factory ready. William Schoelkopf, Madison, Wis.

FOR SALE.

FOR SALE—1903 Franklin runabout; Swinehart tires, engine, transmission and all other parts; good as new. 1906 hood and fenders. 1906 Splittdorf 4-cyl. coil and timer. \$500 cash. L. L. R., care Motor Age.

FOR SALE—New model Marble Swift double 20" disc friction transmission, Hyatt roller bearing ball thrust, including universal joints, lever, pedal, disc brakes. Bargain. Send for cut. 729, 164 Dearborn St., Chicago.

FOR SALE—Waverley electric depot wagon, in perfect condition, very fast. Will W. Morrison, Toledo, O.

1905—\$950 Olds light A4054 tonneau, taken in trade, almost new, at half price. W. O. Foster & Co., Newton, Iowa.

TIRES RE-TREADED ¼ to ½ less than factory prices. Old tires bought and sold. Have some bargains in Re-paired Tires. Write for prices. **AUTO TIRE REPAIR CO.** COLUMBIA CITY, IND.

HIGH GRADE Marine and Automobile Engines, 2 and 4 cycle, 2 to 30 H. P. Lowest prices. A. J. Houle Motor Works, S. East St. Holyoke, Mass.

Thirty Horsepower Silent and Easy Riding

Logan

"That Car of Quality"



MODEL H TOURING CAR

Made of the best design, of the best materials, and with the best workmanship throughout, this car is the ideal size and type for the average motorist. Combines the best qualities of both large and small cars in speed, power, easy operation, etc.

Write for Catalog. Address Dept. "A"

The Logan Construction Company, :: Chillicothe, Ohio
Agents in principal cities. Good agents wanted in all towns.

FOR SALE—One Rapid delivery wagon, in first-class condition. Address C. C., care Motor Age.

TEN PASSENGER WAGONETTE and one 10 H. P. delivery wagon; steam; 1905-6 models; a bargain; prices and description on application. THOMPSON AUTO CO., Olneyville Sq., Providence, R. I.

FOR SALE—1906 White steamer at a bargain; slightly used; good reasons for selling. Address J. P. H., care Motor Age.

FOR SALE—1906 Haynes Model R, with extras; cost \$3,865; run 50 miles; not a scratch on it; owner going to Pacific coast, \$2,500. Address I. F. V., care Motor Age.

FOR SALE—Four cylinder Model "E" 1905 Locomobile in first-class running order; car has had best of care; several extras. W. H. Knowles, Ottawa, Ill.

CADILLAC DUST AND MUD PAN

Made of heavy galvanized steel, perfect fit, put on in two minutes, keeps chain and engine free from mud. Price with straps, \$10. Give car letter model.

3 Manley Brothers, Mrs. Harvard, Ill.

FOR SALE—One Baker electric runabout with charging plant; 1 Waverly electric gear with depot body for seven passengers; 2 light gears; 2 sets of axles; 2 bodies. Big bargains. Describe your wants. Valley Auto. Co., Warren, Ohio.

FOR SALE—1905 Elmore as good as new; has been run about 500 miles; at a bargain. Address C. A., care Motor Age.

AUTOMOBILE SCHOOL

CHICAGO SCHOOL OF MOTORING.

The original Automobile School in Chicago. One hundred and eighty graduates the past year, to whom we refer upon request.

Automobile owners, prospective buyers and young men wanting to become expert chauffeurs will save a great deal of money and a lot of worry by studying the mechanism, care and repair of gasoline automobiles in our shop, where all parts are open so you can see how they are made and how they operate. We give thorough and practical instruction. Competent chauffeurs supplied.

CHICAGO SCHOOL OF MOTORING,

264 Michigan Ave. Phone Har. 119.

KASTION Brazing Compound makes joints in any grade of cast iron as strong as the original metal. Sample box prepaid for 50c. A. L. Taber, Corona, Cal.

Scrap Auto Tires We Buy Them

LAUN-CARLSTEN CO., 77 Metropolitan Bld., Chicago

FOR SALE—Surrey, type 1, Rambler, used as demonstrator. First-class condition. Has 4-inch Dunlop tires, lens mirror, gas head lamps, brass foot and robe rails, and is ironed for top. \$850. Howard Newland, Benton Harbor, Mich.

WANTED—Chief designing draftsman. Expert in gasoline automobiles. Excellent opening for first-class man, capable of taking full charge of designing high grade work for new automobile company. Address A. B. C., Motor Age.

WANTED—Foreman in sheet metal shop making automobile hoods, fenders, tanks, metal dashes, etc. Must be thoroughly familiar with most improved methods and machinery for reducing labor cost on this class of work. Please state fully experience and salary, also references. Address Foreman, Box W. 2, care Motor Age.

FOR SALE—Orient buckboard, splendid condition; nearly new; must sell; price \$200. F. Booth, Stanley, N. Y.

AGENTS WANTED—For our automobile and marine engines. Spark plugs, 50c and \$1. direct to consumer. Colls, carbureters and all supplies at corresponding prices. Columbus Screw & Machine Co., Columbus, O.

FOR SALE—Automobile and bicycle shop. City has about 6,000 inhabitants and about thirty autos. Good business for the right man. For particulars address R. & R., 130 West Seventh St., Junction City, Kan.

FOR SALE OR EXCHANGE—For any good standard car, Winton Limousine. Chas. H. Loew, Cleveland, O.

NEW TIRES 28x3¼, \$9; rubber-lins filled, \$13.50; 28x3 rubber-lins filled, \$16; 30x3¼ or 4, rubber-lins filled, \$22 to \$25.

Rubber-lins Saves Tires, Time and Worry
AUTOMOBILE PALACE, 162 West Jackson Blvd., Chicago

FOR SALE—One steam runabout, one Pierce light runabout with detachable tonneau, one Winton runabout, one 10 H. P. Cadillac light touring car. These machines in A1 order and will sell cheap for cash. Auto. Supply Co., Burlington, Wis.

MAJESTIC CLINCHER TIRES

FULLY GUARANTEED PRICE RIGHT BEST AND CHEAPEST

SINGLE TUBE

TIRES

PUMPS

MAJESTIC

HORNS

LAMPS

TOOLS

MANHATTAN STORAGE CO.

42 Cortlandt St. and S. W. Corner
Broadway and 49th St., NEW YORK

MAIL ORDERS TO 42 CORTLANDT STREET

INDEX TO ADVERTISEMENTS

A
Acetylene Gas Illuminating Co. 77
Acme Motor Car Co. 75
Adams Co. 68
Adland Motor Car Co. 77
Aerocar Co. 66
Aerocar Co. of Chicago. 77
Altemus, C. L., Co. 78
American Ball Bearing Co. 63
American Battery 76
American Coil Co. 69
American Generator Co. 76
American Motor Car Co. 76
American Samson Leather Tire Co. 75
Apperson Bros. Automobile Co. 34
Archer & Co. 75
Aster Co. 72
Atwood Mfg. Co. 71
Auto Accessories Co. 77
Auto Novelty Co. 44
Avery Portable Lighting Co. 63

B
Babcock Electric Carriage Co. 60
Badger Brass Mfg. Co. 43
Bartholomew Co. 67
Bellfuss Motor Co. 74
Billings & Spencer 78
Blomstrom, C. H., Motor Co. 32
Boston Automobile Exchange 75
Boston Auto Gage Co. 76
Bowman, B. F., & Co. 73
Briscoe Mfg. Co. 68
Brown-Lips Gear Co. 61
Buckeye Mfg. Co. 64
Buick Motor Co. 75
Bullard, J. H. 74
Byrne-Kingston Co. 53

C
Cadillac Co. of Illinois 77
Cadillac Motor Car Co. 39
Cambria Forge Co. 64
Central Garage 75
Chase, L. C., Co. 63
Chicago & Alton R. R. Co. 76
Cleveland Motor Car Co. 62
Columbia Lubricants Co. 66
Columbia Steel Co. 73
Continental Caoutchouc Co. 49
Continental Motor Mfg. Co. 75
Continental Rubber Works 64
Coops, C. W., Co. 69
Corbin Motor Vehicle Corporation 45
Corcoran Bros. 75
Cramp, Wm., & Sons Ship & Engine Building Co. 70
Crawford Automobile Co. 56
Crouse-Hinds Co. 68
Cullman Wheel Co. 77

D
Dayton Electrical Mfg. Co. 40
Dayton & Mashey Auto Works 68
Deaunville Automobile Co. 66
Deere-Clark Motor Car Co. 55
Detroit & Buffalo Steamboat Co. 71
Diamond Chain & Mfg. Co. 61
Diamond Rubber Co. 41
Dieseman Shock Absorber Co. 69
Dixon, Jos., Crucible Co. 78
Dorris Motor Car Co. 62
Drake Electric Co. 77

Duff Mfg. Co. 73
Duplex Ignition Co. 74
Duquet, Louis J. 74
Duryea Power Co. 69

E
E. H. V. Co. 65
Eastland, J. W. 77
Edmunds & Jones Mfg. Co. 72
Eldredge Electric Mfg. Co. 78
Electric Storage Battery Co. 71
Electric Vehicle Co. 65
Elmore Mfg. Co. 45
Evansville Automobile Co. 75
Excelsior Supply Co. 71

F
Fairmount Engineering Works 77
Fancher Bros. & Feldt 71
Feddners Mfg. Works 69
Firestone Tire & Rubber Co. 48
Fisk Rubber Co. 73
Ford Motor Co. 56
Forest City Motor Car Co. 57
Four Wheel Drive Wagon Co. 68
Franco-American Auto Supply Co. 59
Franklin, H. H., Mfg. Co. 31
G & J Tire Co. 37-69
Gabriel Horn Mfg. Co. 59
Gemmer Engine Co. 66
Gilbert Mfg. Co. 76
Githens Bros. Co. 77
Goodrich, B. F., Co. 46
Goodyear Tire & Rubber Co. 51
Goshen Rubber Works 74
Gray & Davis 73
Grout Bros. Automobile Co. 69

H
Ham, C. T., Mfg. Co. 74
Hardy, R. E., Co. 78
Harris, A. W., Oil Co. 62
Hartford Rubber Works 42
Hartford Suspension Co. 71
Haynes Automobile Co. 44
Healy Leather Tire Co. 52
Hers & Co. 76
Heublein, G. F., & Bro. 73
Hicks Speed Indicator Co. 71
Hinde & Dauch 78
Hoffecker Speed & Mile Register Co. 69
Hopewell Tire Case Co. 73
Hotchkiss, P. M. 47
Hyatt Roller Bearing Co. 75

I
Igniter Appliance Co. 78
Indianapolis Automobile Top Co. 73
Interstate Automobile Clearing Co. 72
Iroquois Motor Car Co. 71

J
Jackson Automobile Co. 73
Jackson Mfg. Co. 77
Jeffery, T. B., & Co. Cover

K
Kallisch Air Brake Co. 70
Kansas City Motor Car Co. 46
Kellom, Chas. F., & Co. 78

Kenwood Auto Co. 71
Kimball, E. T., Co. 58
Kimball Tire Case Co. 71
Kirchberger, M., & Co. 74
Knoblock-Heldeman Co. 78
Knox Automobile Co. 51

L
Lear, Oscar, Automobile Co. 77
Leather Tire Goods Co. 77
Link-Belt Machinery Co. 57
Lobee Pump Co. 78
Locomobile Co. of America 39
Logan Construction Co. 79
London Auto Supply Co. 69
Long & Mann 70
Losier Motor Co. 75

M
McClellan, Chas. P. 78
McCord Co. 73
McDuffee Automobile Co. 77
Manhattan Lamp Works 56
Manhattan Storage Co. 80
Maps (Road Maps) Mendenhall's 69
Mason Motor Car Co. 70
Matheson Motor Car Co. 49
Mayo Radiator Co. 77
Merkel Motor Co. 62
Meyer, C. G. 75
Michelin Products Selling Co. 47
Michelin Tire, American Agency 62
Miller, Chas. E. 64
Miller-Hopkins Mfg. Co. 70
Milwaukee Rubber Works 73
Mitchell Motor Car Co. 40
Moline Automobile Co. 57
Mora Motor Car Co. Cover
Morgan & Wright Cover
Mosler, A. R. 67
Motor Age 38
Motorcar Co. 72
Motor Car Equipment Co. 75
Motor Car Specialty Co. 59
Motor Components Co. 57
Motor Directories, Inc. 78
Myers Auto Top Co. 61

N
National Motor Vehicle Co. 53
National Spring & Wire Co. 77
Neustadt Auto Parts Co. 58
Never-Miss Spark Plug Co. 76
New England Motor Co. 73
New Jersey Tube Co. 61
N. Y. & N. J. Lubricant Co. 56

O
Olds Motor Works 30

P
Pacific Tucking & Mfg. Co. 71
Packard Motor Car Co. Cover
Pantasote Co. 78
Pierce, Geo. N., Co. 60
Pierce Engine Co. 58
Pittsburg Reduction Co. 71
Pittsfield Spark Coil Co. 68
Pocket Motor Co. 78
Pope Motor Car Co. 43
Prest-O-Lite Co. 48
Prosser, Thomas, & Son 63

Q
Quinby, J. M. 78
Quincy-Manchester-Sargent Co. 70
Rainier Co. 73
Remy Electric Co. 77
Robert Instrument Co. 77
Royal Motor Car Co. 55
Rubby, Leon Repair Co. 77
Rubber Goods Co. 76
Rushmore Dynamo Works 50

S
St. Anne Kerosene Motor Co. 36
St. Louis Motor Car Co. 69
Sellsbury Tire Co. 75
Selman, John A., & Co. 75
Shawver Co. 74
Sibley & Pittman 69
Smith, D. B., & Co. 73
Smith, R. H., Mfg. Co. 58
Smith & Mabley Cover
Snutzel Auto Supply Co. 76
Soules Motor Car Co. 78
Speed Changing Pulley Co. 75
Spicer Universal Joint Mfg. Co. 63
Splittdorf, C. F. 65
Sprague Umbrella Co. 67
Springfield Metal Body Co. 71
Standard Roller Bearing Co. 60
Stearns, F. B., Co. 77
Steel Ball Co. 77
Stevens-Duryea Co. 33
Streit, A., Machine Co. 68
Supplementary Spiral Spring Co. 75
Swinehart Clincher Tire & Rubber Co. 68

T
Teel Mfg. Co. 60
Thomas, E. R., Motor Co. 59
Timken Roller Bearing Co. 52
Tingley, Chas. O., & Co. 74
Trebert Gas Engine Co. 55
Turner & Fish 75

V
Veeder Mfg. Co. 70
Vestal Shock Absorber Co. 65

W
Wallworks Tire Covers 74
Warner Instrument Co. 72
Warner Pole & Top Co. 77
Way Muffler Co. 73
Wayne Automobile Co. 42
Weber, O. F., Co. 77
Weed Chain Tire Grip Co. 70
Welch Motor Car Co. 75
Western Motor Truck & Vehicle Works 62
Western Oil Pump Co. 77
Western Tool Works 55
Weston Electrical Instrument Co. 71
Wheeler & Schebler 35
White Sewing Machine Co. 41
Whitlock Coil Pipe Co. 67
Whitney Mfg. Co. 67
Willard Storage Battery Co. 76
Wills, E. J., Co. 76
Winton Motor Carriage Co. 29
Witherbee Igniter Co. 72

When writing to advertisers, please mention Motor Age.

Welding and Weight

The S. & M. Simplex Touring Car weighs less than many cars claimed to be of minimum lightness. Yet our attention is directed mainly to strength and simplicity. The light weight of the "Simplex" is the more marked in view of the claims for excessive lightness made by makers of air-cooled cars. The

S. & M. Simplex

30 H. P. TOURING CAR

is from 100 to 250 pounds lighter than air-cooled cars of the same horse power. Simplicity of design partly accounts for this difference, but the greater advantage lies in the skillful manipulation of materials. As an example of this let it be noted that there are no welded axles or shafts on the Simplex Car. Welding adds 60 per cent, or nearly two-thirds, to the weight of axles, and is simply a makeshift to utilize short pieces of steel. Simplex axles are forged from a single bar of steel, which gives increased strength and does away with the extra weight caused by welding.



SIMPLEX AXLE,
forged from a single bar of steel.



Welded Axle.
Weighs 66 per cent more than Simplex Axle.

This superiority in construction is carried out all through the Simplex Car in both material and workmanship. We will gladly explain these points detail to all who are interested.

Smith & Mabley

(INCORPORATED)

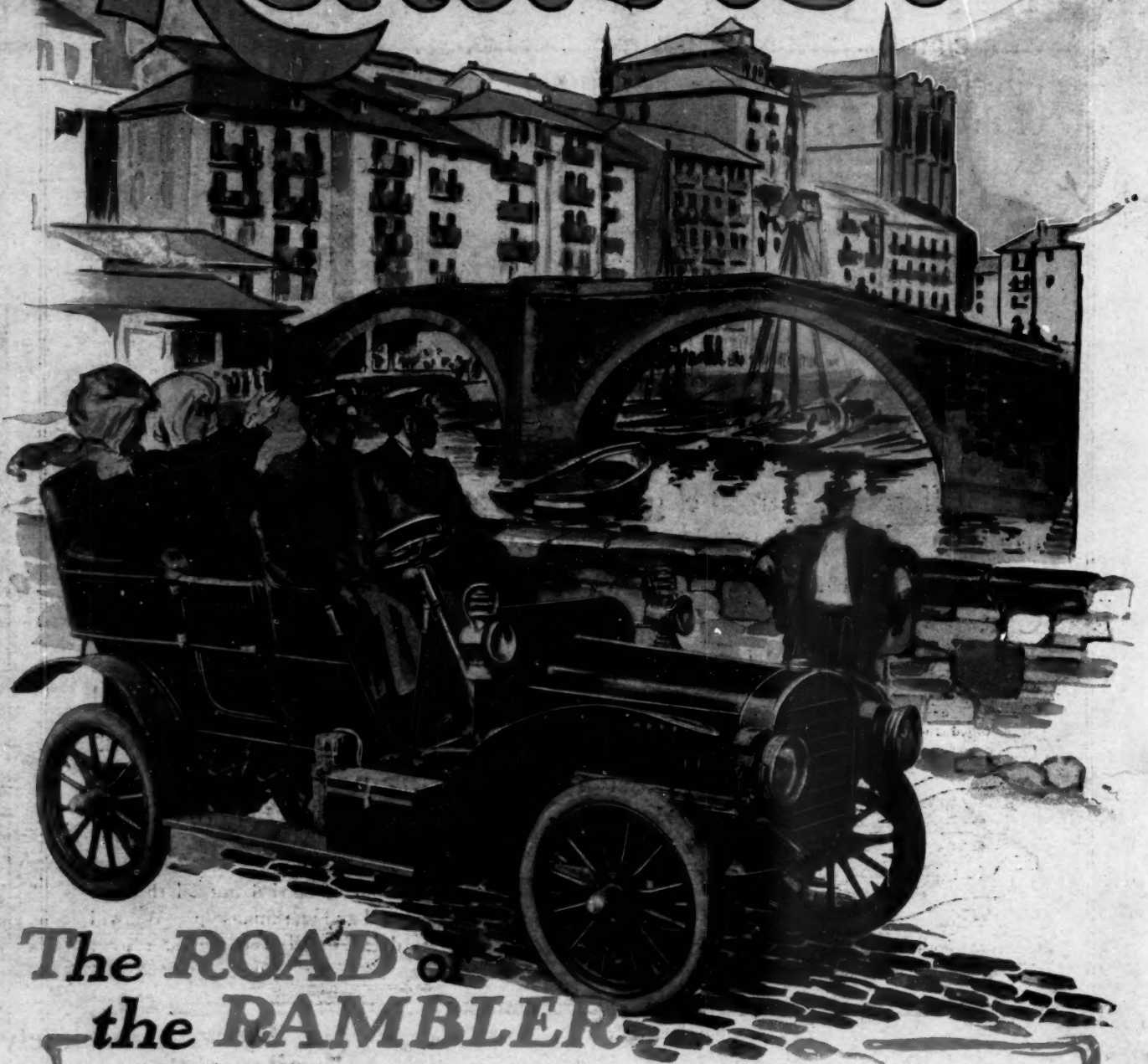
Broadway, 56th and 57th Streets, NEW YORK

Member Association Licensed Automobile Manufacturers

Philadelphia: Smith & Mabley, of Philadelphia—Bellevue-Stradford

Chicago: Hamilton Automobile Co., 1251 Michigan Avenue

Rambler



The ROAD of the RAMBLER

To the tourist who seeks his pleasure in foreign lands, beyond the reach of immediate replacement, the most trivial breakage may mean disaster to an expensive and otherwise enjoyable trip.

To an experienced operator the absolute reliability and steady daily service of the *Rambler* appeals as an irresistible argument.

Main Office and Factory

Kenosha, Wis.

BRANCHES

Chicago .. Milwaukee .. Boston .. Philadelphia .. San Francisco

New York Agency, 38-40 W. 62d St.

Representatives in all leading cities

THOMAS B. JEFFERY & COMPANY